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CONTENTS

	PAGE
Editorial Notes	177
Great Northern Railway (Ireland)	179
Revision of Regional Boundaries	179
Progress of the Irish Transport Bill	180
British Transport Commission Traffic Receipts	181
Letters to the Editor	182
The Scrap Heap	184
Overseas Railway Affairs	185
Repair of Locomotive Plate Frames	188
Mobile Workshops for Rhodesian Railways	
Road Transport	192
Personal	195
News Articles	198
Notes and News	201

The Decline in Passenger Traffic

THE decline in receipts from railway passenger travel has been a marked feature of the returns made by the British Transport Commission for many months. For the whole of last year, the decrease in gross receipts from this source as compared with the previous year, was £8,661,000. As will be seen from the latest return of traffics given elsewhere in this issue, this trend has continued in the first four weeks of 1950, when there was a further fall of £347,000 under this heading. A number of factors have contributed to this decline, not the least of which has been a general tightening of money and a greater disinclination to incur expenditure which can be avoided. The reduced margin for personal spending, which is the result of the present high levels of taxation and of the cost of living, has been reflected in railway travel receipts. Governmental traffic is very much reduced. The position has been reached at which once again the railways are dependent to a very large extent on personal and business travel for their passenger receipts. The railways are fully alive to the need for encouraging passenger traffic by all practicable means, and it was with this end in view that cheap fare facilities were resumed. It is recognised that the present level of railway fares, although it can hardly be called economic from the railway point of view, is sufficiently high in present circumstances to act as deterrent to travel in a great many cases. This was apparent particularly during last summer. Holiday travel is relatively very susceptible to personal economy. The passenger, if he deems the railway fare too great to the resort he wishes to visit, may decide against making that

particular journey and in favour of some much nearer place, with consequent loss of revenue to the railway. In many cases he has the alternative of travelling to either by road, at a price usually less than that ruling for the railway journey, or finally he may decide to forgo his holiday. Probably all three factors operated last summer and will do so again during the coming season. It is particularly unfortunate, therefore, that in their efforts to attract railway passengers during the coming season it appears certain that the railways will be handicapped by the Government's insistence on cuts in the capital investment programme, which must have their reaction on passenger amenities. The inability of the railways under the policy recently laid down by the Chancellor of the Exchequer to provide badly-needed locomotive power and rolling stock to the extent which had been planned, inevitably must react on the standards of service which the railways can offer. It will reduce also the possibility of extending excursion and other cheap-travel facilities, which would do much to attract more travel and to retain traffic which might otherwise be lost.

Diesel Locomotive Productivity Team

ON January 4, as was reported in our issue of December 23, 1949, a diesel locomotive productivity team led by Colonel I. A. Marriott left this country for the U.S.A., with the object of studying production methods at a number of large and small locomotive works. The team is due back on February 23, but, meanwhile, there has been issued a brief interim report on conclusions reached so far. It is considered that the large home market in the United States has provided a demand for such great numbers of similar items that the development of mass production methods was inevitable from the start. There are certain overseas markets supplied by the British locomotive industry which are considered capable of absorbing a standard product such as that provided by American methods. There remains, however, a large and distinct field whose diverse needs called for "custom built" products. Members of the team were greatly impressed by the evidence of continual consultation between the sales, engineering, and manufacturing staffs, and by the high standard of discipline which, they state, "can only be enforced in circumstances where the worker can be readily replaced if he does not accept it."

Railway Staff and Public Relations

PROBABLY the searchlight of public opinion is directed more closely on the railways than on any other industry. Railways by their very nature create keen public interest, often of a critical kind, focused not only on the services offered, but also on changes within the industry itself. Moreover, with a relatively high proportion of the staff necessarily in direct contact with the public, there are many railwaymen who should in theory fulfil in part at least the role of public relations officer, inasmuch as theirs is the responsibility to provide an efficient and courteous service and at the same time note and report comment or criticism. This point was stressed by Mr. D. S. M. Barrie, Public Relations Officer, Railway Executive, in a paper to the East Midlands Section of the Institute of Transport on February 10, when he described how in the field of staff relations the methods of public relations are being increasingly used, and referred to the effective dissemination of information as an essential factor in promoting good staff relations and stimulating pride in the undertaking.

Railway Public Relations

THE former railway companies, said Mr. Barrie, recognised the need for publicity and public relations services, differing only in the degree of importance which they attached to either or both of these functions. After nationalisation it was realised that the new organisation would require a service which would also interpret the economic and material position of the railways and the policy of the Railway Executive regarding the problems facing it. This involved explaining facts as well as stating them. A study was made of methods and requirements

so as to evolve an organisation which would provide that, while on the Executive rested the main responsibility for policy, local contacts and arrangements would be left with the Regions as far as possible. Certain principles were followed, namely, that public relations and publicity were essentially a part of management, and must, therefore, reflect its policy; that the management required to keep in the closest touch with public and press opinion; that the public relations aspect of any policy or project needed to be given due weight from the start; and that the use of the separate technical functions of public relations and publicity must be kept in balance by means of a single managerial control.

Overseas Railway Traffics

AFTER an increase in December, Canadian Pacific Railways net earnings finished the financial year £738,000 higher than for 1948. Aggregate gross earnings for 1949 were up by £2,667,000 at £121,084,000 and, after taking into account working expenses, net earnings for the year were £6,877,000. During December, gross earnings were £320,000 lower, at £10,039,000, though there was a comparatively greater decline in working expenses, which brought the 1948 figure of £9,731,000 down to £9,000,000. C.P.R. net earnings for the month were £1,039,000. As a result of extensive flood damage, traffic on the Costa Rica Railway stopped on December 6 and was not resumed until January 15. Costa Rica receipts have suffered accordingly, and of the C917,759 decline in traffics since July 1, 1949, C617,400 was contributed during December. Traffics for the month were C357,783 and at the end of the half-year amounted to C5,155,862. International Railways of Central America aggregate receipts for 1949 were \$12,395,066, as compared with \$13,333,950 for the previous year, though in the last month there was a \$91,260 advance to \$1,259,960. Net income for the year was down by \$1,190,939 at \$166,832.

Inauguration of Chittaranjan Works

FROM the report which appears in this issue of the inaugural ceremony at the large new locomotive building works at Chittaranjan, Western Bengal, coinciding with the declaration of the Indian Republic, it appears that work is well ahead on this ambitious project, one of the greatest in India in recent years. It will be recalled that last November the Locomotive Manufacturers' Association sent a mission to India to negotiate an agreement to provide the Chittaranjan works with technical aid. British locomotive manufacturers will continue to supply India with locomotives and parts until Chittaranjan reaches full production. At the outset, the new works, of which Mr. P. C. Mukerjee, formerly General Manager of the Bengal-Nagpur Railway, is General Manager, will erect locomotives which have been assembled in this country and sent out to India in parts. It is evident that no expense has been spared in the equipment and amenities of the works which are expected to cost in all more than £10,500,000. The site, close to coalfields and steelworks and on a main line of the East Indian Railway, is well selected.

Planning of New Railways for London

IN a paper on "The Underlying Principles of the London Plan Working Party's Report" presented to the Railway Students' Association on February 8, Mr. A. B. B. Valentine, Member of the London Transport Executive, explained the different approach to the problem of new London railways in the Working Party's report, published in 1949, to that of the Railway (London Plan) Committee appointed in 1944. The Inglis Committee, as the latter has come to be called, primarily had to examine the railway proposals in the 1943 County of London Plan, whereas the Working Party was appointed to indicate as to what extent the proposals of the earlier committee would meet the long-term passenger requirements, altering the emphasis from planning objectives to traffic needs. Mr. Valentine also described the method pursued by the

Working Party, of which he was a member. After estimating and classifying traffic needs in relation to planned developments and future populations, the real difficulty was in deciding how to link the new lines required in central London with appropriate suburban routes, bearing in mind the various priorities of each project and the different rolling stock, service frequency, and so on required by urban and outer suburban services.

Mobile Workshops for Rhodesian Road Transport

ROAD transport vehicles, designed to carry passengers and freight, have been used for some time by the Rhodesian Railways for operating a number of feeder services from remote country districts to the main railway routes, these services being responsible for the task of opening up large areas of undeveloped country. To facilitate repairs and maintenance of this fleet of vehicles the Rhodesian Railways recently ordered from this country two mobile workshops to be delivered to the Chief Mechanical Engineer at Salisbury. Built on a Thornycroft chassis of the "Trusty" class, and propelled by a six-cylinder oil engine rated at 100 b.h.p., also designed and erected at the Thornycroft works, and giving a high power-ratio, these mobile workshops have been equipped with machine tools and accessories of the latest design, which should greatly expedite the repair and maintenance of the vehicles. The equipment provided should thus be capable of dealing with any vehicle repairs which can reasonably be expected. Further details of the design and equipment of the mobile workshops are given elsewhere in this issue.

Power Frames and Panels

A RECENT discussion at the Institution of Railway Signal Engineers, initiated by Mr. C. F. D. Venning, on the subject of the relative merits of power lever frames and relay interlocking panels for large signalling installations, seemed to indicate some lessening in the strength of the advocacy of those who retain their belief in the practical sufficiency of the power frame and, as they see it, its greater simplicity. This may have been because on this occasion those favouring the power frame were not present in as great a number as their opponents. The latter certainly brought forward well marshalled arguments to justify their views, and dealt in an interesting way with the problems of staff training and ease of maintenance of panel installations compared with earlier equipment. The opening of the electric services to Shenfield has resulted in several panel installations of considerable size and importance being brought into use and the possibility of a direct comparison being made between them and the lever frame signal boxes on the Southern Region lines handling similar classes of traffic.

Surplus Steam Locomotives in U.S.A.

THE replacement in the United States of steam by diesel power has created a problem in regard to the disposal of some hundreds of surplus steam locomotives. For the majority of the steam units there is no market in their complete condition, and better prices are obtained for the scrap obtained from them. Railways such as the 2,905-mile Gulf, Mobile & Ohio, which has recently completed its dieselisation programme, replacing its entire stock of 384 steam locomotives by 232 diesel units, have established special facilities for dealing with the scrapping in a quick and efficient way. In the case of the G.M. & O. all the steam power was old, but on other railways more modern designs up to and including 4-8-4 locomotives not more than 20 years old are either condemned or stored with a possibility of condemnation. The suggestion was made recently in the American magazine *Trains* that a "pool" might be established so that railways still using old and inefficient steam locomotives might yield these up for scrapping, acquiring in exchange more modern types for which the present owners have no further use. The use of U.S.A. steam locomotives in other countries is largely ruled out by their weight and overall dimensions.

Great Northern Railway (Ireland)

THE report and accounts of the Great Northern Railway Company (Ireland) for the year to December 31, 1949, shows a net deficit on the year of £83,778. There was a balance of £7,787 brought forward from the previous year, leaving a debit balance to be carried forward of £75,991. These results do not allow for payment of any dividends on the guaranteed, preference, or ordinary stocks. Gross railway receipts decreased by £147,839 and expenditure increased by £29,483, there was a decline of £162,133 in total net income and a resultant loss of £68,467. The addition of fixed charges and debenture interest raised the deficit to £184,492, but after deducting the balance of reserve for war damage contributions not now required, amounting to £100,714, the net deficit was £83,778.

The following table summarises the general working results of the company for the three years 1947, 1948 and 1949:—

	1947	1948	1949	Incr. or decr.
No. of passengers	8,184,350	7,731,862	7,159,085	-572,777
Passenger receipts	£1,267,876	£1,404,938	£1,270,407	-£134,531
Good tonnage	1,525,126	1,508,826	1,506,604	-2,222
Good revenue	£1,132,262	£1,226,638	£1,216,335	-£10,303
Total gross receipts including road transport, hotels, etc.	£3,411,843	£3,728,931	£3,807,292	-£121,639
Expenditure	£3,219,991	£3,699,593	£3,725,585	+£25,992
Net receipts	... Cr. £191,852	Cr. £29,338	Dr. £118,293	

It will be recalled that for many months now the position of the G.N.R.(I.) has been uncertain. A year ago it had become clear that there could be little future for the company as a separate entity and it was then expected that before now some arrangement would have been arrived at with Coras Iompair Eireann (the Irish Transport Company) or jointly with that company and the Ulster Transport Authority. This expectation was such that at the annual meeting held last year it was stated that any further gatherings were likely to be special meetings concerned with the position under a transport reorganisation. Although the position of the Great Northern has been the subject of talks and negotiations between C.I.E. and the Ulster Transport Authority and also the Government of the Republic of Ireland and of Northern Ireland, nothing definite has emerged. C.I.E. itself is in process of change as a result of legislation now going through the Dublin Parliament, to which reference is made elsewhere in this issue.

A statement on transport reorganisation issued by the G.N.R.(I.) board points out that no proposals for the future of the company have emerged since replies were furnished to a questionnaire received from the Chairman of the U.T.A. and of C.I.E. This questionnaire included data for a valuation of the company. A break-up value has been assessed on a basis prescribed by the Chairmen, which though adopting arbitrary underestimates for the rolling stock, confirms the high intrinsic worth known to be possessed by the G.N.R. The statement then goes on to give figures, showing the essential features of the company's experience since the war. They are given in the table below:—

Year	Total	Republic of Ireland	Northern Ireland
1945	+ 538,156	+ 365,421	+ 172,735
1946	+ 312,104	+ 329,708	- 17,604
1947	+ 240,940	+ 333,778	- 92,838
1948	+ 70,541	+ 221,604	- 151,063
1949	- 91,947	- 139,442	- 230,939

It is pointed out that the cause of the downward trend common to the whole undertaking is that sufficient receipts were not obtainable to meet continually rising costs. By comparison with 1945 expenditure, despite economies in 1949, was greater by 29 per cent., but receipts only by 7 per cent. It goes on to state that the explanation of the losses shown under the heading "Northern Ireland," where profits are shown under the heading "Republic of Ireland," is that the company's road services in the North were taken from it in trust to pay the cash value of the assets to co-ordinate road and rail operations, to pool receipts and to divide the pool in proportions favourable to the company. These conditions, it claims, have not been observed. The services were appropriated for use in competition against the company, but no part of the receipts were

transmitted to it. A table is then given illustrating the post-war effects on the G.N.R.

Year	Republic of Ireland		Northern Ireland	
	Receipts	Mileage	Receipts	Mileage
1945	37	30	63	70
1946	40	32	60	68
1947	40	31	60	69
1948	41	33	59	67
1949	40	34	60	66

In each of the five years, mileage which had to be run in the North was proportionately greater than receipts, while in the South it was smaller. To meet competition from road services, which the law had directed to be co-ordinated with rail, the company was compelled to wasteful duplication of a kind that had long been eliminated in the South.

Public policy, it is added, by looking to the principal transport undertakings to bear the load of its varied and costly requirements, although all three of them are working at a loss, rules out profit-earning from the public measure of the value of the transport system. Significantly, however, the items of net income under the heading of "Republic of Ireland" in the last table but one, suggest that the company is one which could earn profits even under the burdens of 1949, where it was not denied its legitimate opportunity. As the larger part of the area within which the G.N.R. operates is in the North, the losses which appear under "Northern Ireland," would, it is claimed, have been profits proportionately greater than those shown in "Republic of Ireland," but for the unrequited exclusion of the company from the roads. Those profits would accrue to an acquiring party free to effect that throughout co-ordination of road and rail from which the company has been debarred.

The annual meeting of the Great Northern Railway Company (Ireland) is to be held in Belfast on February 28. It is probable that the Chairman, Lord Glenavy, will deal at some length with the position which has arisen in regard to the lack of finality in the negotiations with the Ulster Transport Authority.

Revision of Regional Boundaries

AS from April 2, a considerable re-adjustment is being made by the Railway Executive in the boundaries of the railway Regions. The matter has been under discussion practically ever since railways were nationalised at the beginning of 1948, and at one time it had been hoped that the new arrangements would have been ready to come into operation as from the beginning of this year. The matter, however, is not simple, and when discussions began on revising the boundaries of the Regions, it very quickly became obvious that problems of considerable complexity were involved. Theoretically there is a very great deal to be said for neatness and precision in the delineation of Regions. In practice, it has been necessary to cope with all the complications which have arisen from the piecemeal development of railways in this country for well over 100 years. The Railways Act of 1921 may be said to have begun the tidying-up process, but that measure left a great many loose ends in the shape of joint lines and other lines which wandered far from the true territory of the owning company.

Since the nationalisation of British Railways there have been transfers of line between one Region and another on several occasions, of which the London Tilbury & Southend may be cited as an example. Some lines, such as the Whitechapel & Bow have been transferred from the Railway Executive to the London Transport Executive and it had been expected that this process would continue. This procedure, however, did not really deal on a large scale with the problem presented by the penetrating lines—that is to say, lines which run into territory which logically belongs to another Region. Occasion has also been taken now to deal with lines which penetrate into territory where there is overlapping, and in re-drawing the geographical arrangement of the Regional boundaries, lines or stations which formerly belonged jointly to two or more of the railway companies, have been placed under the supervision of a single Region.

As will be seen from the article elsewhere in this issue,

the main principle followed has been that each Region should be self-contained as far as practicable. The boundaries of the districts supervised by the district officers of the departments are being re-drawn where necessary to bring under the new Region those stations, depots, and so forth which are transferred from another Region. The district officers will then be responsible to the departmental officers of the new Region.

It is important to note that there are some fundamental exceptions to this rule. Obviously it would be impracticable in existing circumstances to make changes of this kind in operating arrangements. The cost alone of altering control equipment, apart from interference with train and traffic working based on long experience, would rule it out of court. Therefore, in general, the existing operating arrangements of trains and traffic working will be preserved, including the existing operating and motive power districts, divisions and regions. The former L.M.S.R. Birmingham and Bristol main line is a good example of what is proposed in cases of this kind. It will continue to be operated by the London Midland Region, although it will come within the revised boundary of the Western Region. An even more striking case is that of the old Great Central line from Marylebone to Manchester, which will continue to be operated throughout by the Eastern Region, although the line itself will come within the revised boundaries of the Western, London Midland, and Eastern Regions. On these penetrating lines, the operating and motive power officers will continue to exercise the same control as formerly, but the departmental officer will report to the Chief Regional Officer of the new Region for those matters which come within the latter's function.

In effect, therefore, the changes which are being made will be commercial and administrative as distinct from operational. From the point of view of the commercial side, there is everything in favour of such a change. It seems likely, however, that there may be some practical disabilities from other viewpoints. On the operating side it must result in need for increased consultation which will not necessarily make for more expeditious working. In the case of the penetrating line, and very nearly all of the changes come within that category, the splits which must occur in responsibility to two or more Regional Officers on some matters, seem to introduce a new complexity.

Obviously changes of the kind which are now being made will invalidate from April onwards any inter-Regional comparisons of receipts with any previous period. They will also bring a number of administrative problems in their wake. One that comes immediately to mind is the additional clerical work which will fall on Regions which acquire a number of stations by transfer. The obvious method of dealing with this would be to transfer clerks from another Region which has lost stations, but the practical difficulty of providing accommodation rules this out at the present time. Some fairly wide changes in public timetables will also be necessary; it will probably be some time before the public gets used to the idea of the change-over in the ownership of the lines and presumably large sections will have to appear in the public timetables of both the Regions affected by transfers.

It is not the public, however, which is most concerned in changes of this kind. To the extent that the public is involved, it will benefit by reason of the simplified administration in a district. District operating officers, however, who will be responsible to one Regional Officer for operating and to another for all other matters, may not be so pleased with the new arrangements. It might have been better to have made the revisions purely on a commercial basis at the present time and to have left other matters in abeyance. There seems little doubt that at some time in the future, if the objectives of the Transport Act of 1947 are realised, a stage will be reached at which there will be need for further organisational changes. With the integration of rail and road, area organisations will probably be established under transport officers responsible for all forms of traffic. Rail and road divisions could then be made co-terminous and much of the present re-organisation could have been deferred until then.

Progress of the Irish Transport Bill

SIR JAMES MILNE, former General Manager of the Great Western Railway, was asked by the Irish Government in July, 1948, to make a report on how the co-ordination of transport in that country could best be effected. Several fundamental alterations in transport administration were suggested in his comprehensive report which was published in December of that year. It was recommended that a Central Highways Authority should be established for the maintenance and improvement of the highway system to which all forms of transport—railways, canals and road transport—would contribute. The report also suggested the appointment of at least two additional Government directors to the board of Coras Iompair Eireann, a more frequent and rapid passenger service with lighter trains and the use of diesel railcars, the curtailment of capital expenditure under many specific headings and the abandonment of the proposal to use diesel-electric locomotives for main-line work. It was recommended that branch lines should not be closed if their retention was necessary in the public interest, the company's wages bill cut by at least 5 per cent., bus fares increased, and the Grand Canal Company acquired by Coras Iompair Eireann under its powers authorised in the 1944 Transport Act. It was also suggested that there should be a revision of licensing arrangements for all commercial goods vehicles including those of the public undertakings.

Dealing with the Great Northern Railway (Ireland), Sir James Milne suggested that the fixed assets of the company be taken over by Coras Iompair Eireann in Southern Ireland and the Ulster Transport Authority in Northern Ireland. Receipts would be pooled and divided *pro rata* but the G.N.R. should continue to operate its own rail and road services. With regard to four minor railway companies operating cross-border services and having a total track mileage of 211, it was recommended that the reconstituted Great Northern Railway should acquire and absorb them into its system.

In February, 1949, the Southern Irish Government announced a scheme for the nationalisation of transport on the basis of the acquisition of all public transport (rail, road and canal), the appointment of a Transport Board by the Government and the compensation of shareholders, with a provision to ensure that all redundant staff would be absorbed over a period through normal wastage by retirement, and so on.

The text of the Transport Bill, 1949 (laid in blank before the Dail just before the recess in July), and published on October 14, showed that its object was to effect the nationalisation of Coras Iompair Eireann and the Grand Canal Company from January 1, 1950, under a new transport board which would also bear the name of Coras Iompair Eireann. The board was to consist of a Chairman and not more than five members, all of whom were to be appointed by the Government. It was also provided that the General Manager of the company might be appointed to the board with the consent of the Minister for Industry & Commerce. The board was to have final powers for the regulation of fares and merchandise charges, train services might be terminated on any section provided one month's prior public notice was given and an adequate road service provided, any railway line on which train services had not been operated for a period of twelve months subsequent to the establishment date could be abandoned, and the board might acquire other transport undertakings wholly or partly within the State subject to the approval of Parliament.

The Bill contained no specific reference to the position of the Great Northern Railway (Ireland), the Central Highways Authority, or the proposed revision of existing licensing arrangements for road vehicles as recommended by Sir James Milne, but Mr. Morrissey, Minister for Industry & Commerce, during the second reading in Parliament stated that these matters would be dealt with by the new board, which would make recommendations to the Government on further legislation that might be necessary. Mr. Morrissey also said that State-owned cor-

porations of the kind proposed should be invested with the greatest possible degree of commercial and financial autonomy and that it was the Government's duty to ensure that transport was carried on as effectively and efficiently as possible. Consequently, the Government had come to the conclusion that the discharge of that duty demanded State ownership of public transport. The recommendations in the Milne Report were dealt with at length by Mr. Morrissey who said that the findings confirmed the doubts of the Minister of Finance and himself about the necessity for undertaking the projected capital developments.

Progress of the Bill through Parliament has been stormy and it soon became apparent that the new body could not be established on January 1, 1950. During the Committee stage Mr. Morrissey moved an amendment, which was carried, postponing the operative date of the Bill to April 1, 1950. When Parliament rose at Christmas the Committee stage was still being debated and a total of 101 amendments had been tabled, about half by Mr. Morrissey himself. The most important of those proposed by the Minister recommends the establishment of a Government appointed Transport Tribunal to be composed of not less than three nor more than five members which would have power to review the proposals of the board in such important matters as the closing of branch lines and the regulation of fares and merchandise charges. Provision is also made for interested parties to appeal to the Tribunal where an increase in rates and fares or the discontinuance of train services are contemplated by the board. The Irish Parliament reassembled on February 15.

British Transport Commission Traffic Receipts

THE traffic receipts issued by the British Transport Commission for the first four weeks of 1950 show a continuation of the downward trend. Gross traffics of British Railways for the four weeks to January 29 amounted to £22,017,000, as compared with £22,282,000 for the similar period of 1949, a decline of £265,000. Passenger receipts again were considerably below the corresponding figure for the year earlier; at £6,078,000, for the four weeks of this year, they were £347,000 less than in the first four weeks of 1949.

Merchandise and livestock also declined; in this instance the total of £6,133,000 was £185,000 less than a year earlier. Parcels by passenger train were valued at £100,000 more at £2,040,000 and there was a small advance of £20,000 in revenue from minerals, which totalled £2,359,000. Coal and coke receipts were up by £147,000 to £5,407,000. The table below shows the principal variations during the week as compared with a year ago.

	Four weeks to January 29		Incr. or decr.
	1950	1949	
British Railways—			£000
Passengers ...	6,078	6,425	- 347
Parcels, etc., by passenger train ...	2,040	1,940	+ 100
Merchandise & livestock	6,133	6,318	- 185
Minerals ...	2,359	2,339	+ 20
Coal & coke ...	5,407	5,260	+ 147
	22,017	22,282	- 265
Road Passenger Transport, Provincial & Scottish—			
Buses, coaches & trolleybuses ...	2,284	2,253	+ 31
London Transport—			
Railways ...	1,119	1,129	- 10
Buses & coaches ...	2,241	2,254	- 13
Trolleybuses & trams ...	800	810	- 10
	4,160	4,193	- 33
Inland Waterways—			
Tolls ...	54	54	Nil
Freight charges, etc. ...	63	66	- 3
	117	120	- 3
Total ...	28,578	28,848	- 270

Although there was an increase of £31,000 in takings from provincial and Scottish road-passenger transport, which in the aggregate was £2,284,000, this was more than offset by a decline of £33,000 to £4,160,000 in receipts from railways and road transport in the London Transport area. Inland Waterways showed a gross revenue £3,000 down at £117,000.

The result of traffic operations of the British Transport Commission for the first four weeks of this year was a gross total of £28,578,000, which was £270,000 less than in the first four weeks of January, 1949.

Repairs to Locomotive Frame Fractures

THE locomotive frame is called on to fulfil many functions; it has to locate the wheel and axle assemblies in their correct positions, longitudinally and laterally, and at the same time form a suitable bed for the attachment of cylinders, motion girders, and various other parts of the locomotive. At the same time it has to withstand the forces connected with the transmission of the piston thrust to the crank pin, the tractive effort passing from the rim of the wheels to the drawbar, and the various forces associated with the movement of the locomotive as a vehicle along the track. The frame must also support the weight of the boiler, absorb buffing stocks, and be capable of being lifted from its two ends without sagging; the locomotive frame consequently is subjected to a complex range of forces many of them exceedingly difficult to estimate.

Locomotive frame fractures are not confined to locomotives on British Railways only, and though welding technique has improved immeasurably during recent years, the results obtained by the collaboration of the Chief Mechanical Engineer's Department and the Research Department of the London Midland Region in an endeavour to ascertain the best method of effecting repairs to locomotive frame fractures, will be a matter of considerable interest to other railway administrations. With the demand for more power, no doubt one of the causes of frame fractures, as the power increases, the stresses on locomotive frames probably already showing signs of distress, and especially in view of the probable increase in the incidence of frame fractures as the age of the locomotives increase, the subject is an important one.

Although increased power demand is probably a contributory cause, another factor which has a considerable bearing on the subject is the efficient maintenance of the locomotives in the running sheds, and collaboration between running shed and workshops staff and the design staff would assist in their appreciating each other's difficulties. The withdrawal from service of locomotives affects not only engine availability, but also throws increasing work on the workshops, with consequent disruption not only to classified repairs, which are catered for on a programme basis, but probably results in having to withdraw staff from such repairs, resulting in considerable interference to the work programmed, and an increase to engine repair days. Depending on the mileage earned by the locomotive since its last repair, although sent to the shops for repairs due to frame fracture, advantage can, and probably is, taken to carry out other repairs which may be necessary to ensure its earning a considerable mileage before it is stopped for routine repairs, thus offsetting to some extent its withdrawal from service because of frame fracture.

The advantages offered by a standardised method of repair should assist in curtailing the number of days the locomotive is under repairs, and should materially assist in reducing the number of such repairs to a minimum. Where frame inserts with sloping sides are fitted, they can be prepared and held in stock against requirements, cut to correct size, since the correct welding gap between the frame and the insert can be obtained by lowering or raising the insert. A further advantage is that all defective plate is cut out of the locomotive frame, not only in the immediate vicinity of the fracture, but also in the places where further fractures are most likely to occur. Further information on the subject is given elsewhere in this issue.

LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

Gradients in Hump Marshalling Yards

February 3

SIR.—The design of gradients is such an important factor in the efficient operation of marshalling yards that I feel compelled to comment on the vague generalities on this subject by Mr. H. W. Waricker, in the article entitled "Gradients in Hump Marshalling Yards" in your issue of January 27.

If the gradient through the point area, usually several hundreds of feet in length, is such, as suggested in the article, that a slow-running wagon will maintain its speed, a fast-running wagon will gain excessive speed though it be brought to a stop at the king points. Now, if a wagon is stopped at the king points, wagons should be stopped coming over the hump; otherwise there will not be the necessary separation between cuts to throw the points, and consequently the humping rate is reduced. The way to overcome this is to control the speed of the wagons, especially the good-running wagons, throughout the point area as is done in any non-mechanised hump yard. This, however, requires more than two brakemen, and probably ten or twelve in a yard dealing with 3,300 wagons a day.

Wagons obviously do not run as freely in bad weather as they do at other times; thus, one finds work in many non-mechanised yards virtually brought to a standstill by bad weather conditions.

Such considerations as the above invalidate the assumptions made by Mr. Waricker and justify the capital cost and so on incurred in existing mechanised yards. Such yards are paying ample dividends in many countries, and the methods used in them warrant the serious consideration of all who wish to improve the working of marshalling yards, and thereby the railways goods handling system generally.

Yours faithfully,

J. C. KUBALE

"Tall Timbers," Stoke Poges

1948 Locomotive Exchanges

January 20

SIR.—A number of letters has appeared in your columns recently concerning the Bulleid Pacifics. I am not, like Mr. Maxwell, a practical man, but merely an intermittent passenger and therefore more impressed by early arrivals than details of locomotive handling. Even so I was a trifle amused at the description of a "Merchant Navy" or "West Country" engine as a fiery and explosive dragon which "flings hot ash in showers on to the coaches and into the eyes of passengers . . . and wastes thousands of gallons of water by blowing off continuously." I have done a fair amount of travelling behind these engines, often, be it confessed, with head out of the window, and have not noticed them any more prone to these disturbing phenomena than other classes.

Whether it is better to use engines which will run to "luxury speed schedules" to attract the public, or be content with the lethargy of today's "reasonable timings," as Mr. Maxwell prefers, I will not argue, but your correspondents seem to have interpreted too literally the purpose of locomotive exchanges. What they are warning against is the possibility of the Bulleid Pacifics being adopted for use on all Regions. But no one is asking that these Pacifics should take the "Limited" up Hemerdon or the "Royal Scot" up Shap and Beattock; they were designed for main line operation on the Southern, in which sphere their work is both valuable and competent, and indeed has enabled several fast 1939 schedules to be exactly restored.

The object of the 1948 exchanges, surely, was not to decide which of the present locomotives was most suitable for indiscriminate use on all Regions, but to test their reactions to a variety of conditions with a view

to combining the best features of existing classes in the future standard designs.

As to the waste in using these engines on light trains, there are no doubt some duties from which the Pacifics could profitably be released for more arduous service elsewhere (though the three- and four-coach trains of the Southern grow to something much more weighty in summer). We can only hope, and it seems reasonable, that in addition to turning out new standard locomotive designs, British Railways will look into the most effective distribution of its existing locomotive stock. Such economies are the very basis of nationalisation.

Yours faithfully,

B. KNOWLMAN

Woodside Grange Road, N.12

"British Railways and Economic Recovery"

February 4

SIR.—I have been interested to read the notice of my book, "British Railways and Economic Recovery," in your issue of January 20, especially in view of the various criticisms advanced, to which I trust it may not seem inappropriate if I venture some reply.

The question of bias, of course, must remain largely a matter of opinion, and I can only point to the numerous long excerpts that I have quoted from the railway companies' own anti-nationalisation propaganda, so that the claims and arguments therein advanced should be adequately stated.

The American statistics of which you complain were cited *à propos* of a comparison of cheap railway charges abroad with the much more expensive facilities at home in the days when British railways were privately owned. If the comparison had been extended into 1948 and 1949, it would have been pertinent to have pointed out that, under a continuance of private ownership during these years, we should have been faced with far steeper increases of charges than have occurred on the American lines. In 1944 or 1945, the Chairman of the Great Western Railway made a statement implying that, after the war, British railway charges would have to be stepped up in proportion to the rise in operating costs—then some 60 per cent. above pre-war but now stated to be 120 per cent. To avoid a complicating factor of this kind, it seemed fairest to limit the comparison to the period when both railway systems were in private hands.

I note that all my proposals are stigmatised as being impracticable under present conditions, including the project for an electrified artery from London to the leading towns, on which could be canalised much of the long-distance traffic at present distributed over alternative routes. When this scheme was put forward in your correspondence columns on September 21, 1934, the only criticism advanced in an editorial comment was to the effect that increased operating efficiency must, unless accompanied by other reforms, be followed by increased unemployment. With the emphasis now on the shortage of manpower rather than on the former problem of unemployment, and with the price of coal now three times that in 1934, the case for large-scale electrification would seem correspondingly strengthened rather than weakened, especially when there are such strong grounds for believing that the country's economically workable coal reserves will be exhausted within sixty or seventy years.

With regard to the preference for diesel traction in preference to track electrification west of Harrisburg, it is pertinent to refer to the abundance of cheap oil in America—also to the insistence of American trade unions on having two men on the footplate of electrically-hauled trains (or so, at least, I have been informed), whereas in Switzerland 80 per cent. of the traffic (as measured in train hours) is conducted with only one engineman per train. It is significant, surely, that even in America, the original electri-

tion scheme from New York to Washington and Paoli should have been followed by the extension of the track equipment to Harrisburg.

I note that you regard much of the book as being rendered superfluous by the Transport Act of 1947. At various points of the text I have explained the importance of recapitulating exhaustively the arguments for nationalising the railways, partly to see how far they are applicable to other industries under consideration for nationalisation, and partly to see how far we are in fact availing ourselves of the possibilities now opened up for the railways. Altogether, I must have enumerated some fourteen or fifteen cogent reasons for taking over the transport industry. Unfortunately, there is little evidence that the Government (still less the Opposition) is at all aware of the great advantages that might now be enjoyed. To quote from the current issue of the *Economist*:

"Certainly neither the nationalisation Acts themselves, nor the speeches of Ministers in proposing them, nor the actions of the boards since they have been set up, have provided many clues to the existence of a logical justification of a positive kind (there was plenty of negative justification in the case of coal) for disturbing the previously existing state of affairs . . . the schemes have not been designed to do any job—except the economically and socially pointless one of replacing private ownership by public . . . many people who are neither socialist nor anti-socialist by conviction are beginning to feel bitterly disappointed. In most of the industries that have been nationalised, there was something that badly needed to be done and could have been done by state intervention, provided it was very carefully designed to achieve a defined purpose, not merely to satisfy an instinctive demand for expropriation."

The Transport Act of 1947, therefore, leaves many matters pertaining to nationalisation still unsettled. Strenuous efforts are being made, for instance, to retain road transport in private hands, with results that might seriously injure the whole scheme. In any case, quite apart from these live issues, the subject must clearly remain a matter of the greatest academic interest for many years.

Notwithstanding these differences of opinion, I should like to express my appreciation of the space which you have afforded to a consideration of my book, and of the hospitality which I have enjoyed in your correspondence columns on various occasions before the war.

Yours faithfully,
K. H. JOHNSTON

57, Trentham Road, Stoke-on-Trent

Railway Fares

January 17

SIR.—If Mr. Laundy will come to St. Neots any morning, he will see train after train passing through this district, each with seating accommodation for hundreds of passengers, yet with hardly a score in any one of them. Naturally, the vast majority will not use them when they can travel by road at half the railway fare.

Similar conditions obtain all over the country, but rather than take the obvious course of reducing fares *en bloc*, the accountants prefer to fiddle about reducing them piecemeal, sublimely indifferent to the fact that they are losing £700,000 month after month, and year after year. By instructing stationmasters to reduce their ordinary fares to 1d. a mile single and 1½d. return, and send in a list of the old and new fares, they could all be in force by the end of the month.

But Mr. Laundy claims that if they were reduced to these (motorcoach) levels, the railways would suffer a net loss of £56,000,000 a year! His calculation is obviously based on the present number of passengers and takes no stock of a huge prospective increase. As a concrete illustration, a branch line at Sunderland had been carrying an average of only 16 passengers a day, at a fare of 1s. 11d.—maximum receipts £1 8s. 9d. But no sooner was the fare reduced to 1s. 2d. (motorcoach levels) than the number of passengers jumped to 316, paying a maximum of £18 8s. 8d.! On the previous Saturday, when a football match was played, there were only 37 passengers. The following Saturday, however, no less than 712 travelled! There is no reason to assume that similar results would not be recorded on all the other branch lines, and throughout the country generally.

Mr. Laundy wants to know what would happen to

the road transport industry (now nationalised) if all the traffics go by rail. Well, what? Excepting for local distribution, motor transport was never necessary when the railways carried 100 million tons and hundreds of millions more passengers much more efficiently, quickly, and cheaply than today. Does he advocate that the country should continue this largely unnecessary duplication of transport at enormous expense in petrol, streets, roads, and accidents?

Evidently he does not know that between the wars German railway traffics—whose charges had been increased by only half as much as in England—increased by 50 per cent. (passengers from 1,500 million to 2,300 millions), while British traffics declined by almost as much. If they had similarly increased the abnormal growth of motor transport—including private cars—would have been prevented. Much better, also, to use their advertising space in newspapers for giving examples of the proposed new fares—including reductions in season-ticket rates—than in continuing to use it in trying to develop their silly excursion system.

Mr. Laundy further claims that most of my "remedies" would entail such a vast outlay, and take so long to become effective, as to be quite outside the realms of practical politics at the present time. May I remind him that, some 20 years ago the L.M.S.R. built a number of 40-ton self-discharging wagons for carrying their own coal? So great were the economies from them that the traffic officers recommended their general introduction in order to make a substantial reduction in rates on coal and unloading costs. Why were they not built? No alterations were necessary, and only 20,000 would be required to carry the present day's output of 800,000 tons of coal. (The rate of building wagons is now 40,000 a year.)

Three Royal Commissions had previously recommended the replacement of our ancient wagons by 20-ton wagons—which was also supported by the leading traffic officers of the railways. Why was it not done? Instead, £461,000,000 was spent on quadrupling tracks, new marshalling yards, loop lines, sidings, signalling, etc., practically all of which would have been unnecessary if these larger wagons had been built. The millions of money now spent every year in patching up outworn wagons would also have been avoided. Enormous savings would have been made.

Mr. Frederick Smith in your December 30 issue, may well ask: "Who it is that is responsible for the perpetuation of methods of operation which are unquestionably the key to general inefficiency?"

So I repeat that all the railway administration really needs is a few men with commonsense and enterprise to capture all the (competitive) traffics.

Yours faithfully,

E. R. B. ROBERTS

Eynesbury, St. Neots

Accommodation on Outer Suburban Trains

February 3

SIR.—One is always hearing people complain, with good reason, how dirty the upholstery is becoming in the compartments of our one-class outer suburban trains, both steam and electric. It cannot be wondered at, seeing the increasing numbers of workmen in oily and sooty overalls who travel in them.

It does seem that the time has come when British Railways ought again to provide first class compartments on outer suburban trains for those who wish to take care of their clothes, even if at higher fares. It would be helpful to revert to a custom of the late 1890s, when first class compartments on the Baker Street-Aylesbury line had their outside upper panels painted white, for quick and easy distinction. This should apply to all trains, corridor as well as non-corridor.

Yours faithfully,

E. A. GURNEY-SMITH

Ormiston Hotel, Sevenoaks

THE SCRAP HEAP

Lenin Funeral Train Museum

The funeral train bearing the body of Lenin, which arrived at Moscow Pavle茨k Station on January 23, 1924, and which was referred to in our issue of March 26, 1948, has been converted into a museum. This train, consisting of a locomotive painted red and a coach in which the coffin with the remains travelled, is housed in a special stone building which forms a part of the Pavle茨k terminus.

Framed

An express train was held up for 20 min. between stations on February 10 while the guard had a good look at the passengers' legs. He was seeking a pair clad in brown pin-stripe trousers. A porter had seen the legs waving wildly from a carriage window as a Sheffield-London express pulled out of Loughborough Station.

The train was stopped two miles before it reached Leicester, as it was thought that the leg-waver might be trying to leave the train. Actually, the passenger was only trying to get properly aboard.

As the train was leaving Loughborough the man dashed on to the platform, pushed his grip through an open window, and jumped on to the running board. When he tried to open the door the lock jammed, and when he tried to climb through the window he himself jammed half way in. A girl pulled him aboard and later the man was interviewed by Railway Police.—From the "Daily Mirror."

"Hiccup" Strikes on the "Metro"

Commenting on the sporadic strikes which are inconveniencing passengers on the Paris Metropolitan, *The Times* says: "In the morning and in the evening the coaches are crowded with people on the way to and from their work. But there are also 'rush hours' in the middle of the day. Where the system differs from this country's, and

where the *Métro* plays an even more important part in Paris than the underground and the tubes in London, is in the matter of the luncheon interval. There is no nonsense about the French office worker taking 45 min. for luncheon and going round the corner for some sandwiches and a cup of coffee; he returns *chez lui*—counting upon the *Métro* and the autobus to carry him—and there he consumes a proper and satisfying meal, after which he is conveyed back by the same means of transport to his place of business. With this burden on public transport, the discomforts caused by interruption are naturally very great. . . . The Frenchman . . . on strike days . . . weakly tries to beg a lift home to luncheon from the none too charitable Parisian motorists. All he asks is that his *Métro* runs, and runs reliably, without let, hindrance, or the 'hiccup.'"

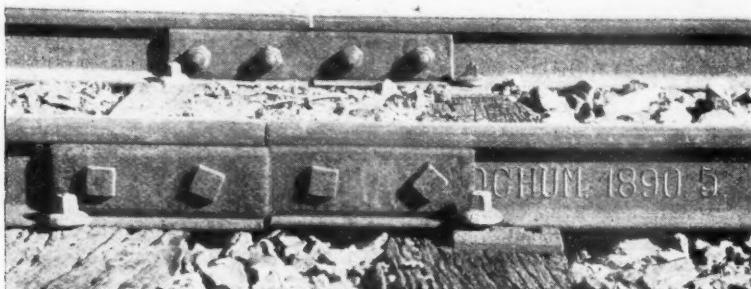
Christmas Tree Displays

The ten Christmas trees displayed at North Eastern Region stations during the 1949 season produced £3,601 18s. 4d. in money, as well as 11,627 parcels, toys and books for charitable institutions and hospitals. The totals collected since 1935 amount to £30,710 and 70.627 gifts.

Among the contributing stations in 1949 were: Darlington, with about £224 and 674 gifts; Harrogate, some £99 and 3,633 gifts; Hull, about £739 and 1,000 gifts; Middlesbrough, some £266 and 549 gifts; Newcastle, £1,327 and 3,407 gifts; York, £483 and a total of 480 gifts.

On February 14, Mr. H. A. Short, Chief Regional Officer, North Eastern Region, handed over a cheque to Mr. C. M. Jenkins Jones, who is Chairman of the York (A) and Tadcaster Finance Committee. Mr. Jenkins Jones was accompanied on this occasion by Mr. W. Louis Lawton, Chairman of the York (A) and Tadcaster Hospital Management Committee.

Diehard Rails in South Africa



Sixty-year-old rails on the Komati poort—Zoekmakaar line, South African Railways, showing date and German origin (presumably "Bochum")

Photo:

A. F. Bruyns-Haylett

Nursery on Prague Station

A children's nursery, equipped with cots, toys, baths, and cooking facilities, has been opened at the main station in Prague. Mothers arriving in or passing through Prague can feed and bathe their babies and small children there. Nurses will be on duty in the nursery day and night.

International Greetings

Last autumn a British frigate, H.M.S. *Snipe*, sailed up the Hudson River, U.S.A. She was the first British warship to do so for 170 years. Other vessels saluted her as she went by.

At one point the New York Central railroad tracks hug the shore. A train came speeding along, and as the locomotive drew opposite the ship, the engineer blew a long blast on the engine's whistle, followed by a short one.

In reply, the *Snipe*'s whistle sounded, one long blast, one short one. "This," said one of the officers on the bridge, "is the first time the *Snipe* has exchanged greetings with a train."—From "British Railways Magazine, Southern Region."

Portents

There's a certain *je ne sais quoi* in the air,
A subtle something, evanescent, rare,
And those of us who wake each morning, snappy,
Feel a curious inclination to be happy.
There are weeks to come of racing
over "sticks,"
And Jack Frost may play his usual low-down tricks,
Yet those optimists, who used to read
the "Pink 'Un,"
Have already risked their shirts upon
the Lincoln.
January's fickle Spring has come and gone
And, although that arrant bluffer, Old
Man Sun,
Has forsaken us, it seems, for the
Riviera,
Yet in many ways the picture's getting
clearer.
And the advert columns in the daily
press
Have recanted just in time and now
confess
That the thrills of Winter Sports are
less exciting
And the homelier resorts much more
inviting.
There are even stealthy signs about the
home,
All indicative of brighter days to come,
Anyway, those garden tools, so long
neglected,
With attendant gear, are being resur-
rected.
But the portent paramount in this affair
And the certain sign that Spring is in
the air
Is that fascinating fount of informa-
tion—
The railway guide book—now in cir-
culation!

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Catering Department

The fall in main-line passenger revenue has been reflected in the accounts of the Railway Catering Department. Increased charges for meals became operative on April 1, 1949, but in spite of these increases, revenue has declined. Total revenue for the first six months of the current financial year was £1,037,769 and expenditure £1,126,981. The loss amounted to £89,212 as compared with a loss for the corresponding period of the previous year of £85,870. Expenditure for the six months showed a decrease on the preceding year of £14,002.

An economy campaign is being energetically carried out in the department. Overtime and Sunday time have been reduced and all sections of the staff are attempting to adjust the organisation to the new conditions. In spite of shortages and high prices, catering is being maintained at a high standard.

All meals served in the dining cars are prepared *en route* and no pre-cooked or processed foods are served. It has been necessary to buy locally manufactured crockery and glassware of inferior quality and losses through pilfering and breakages have considerably increased expenditure for replacements. The approximate losses and breakages of glasses amounts to 10,000 monthly; 8,500 tea cups, 5,000 saucers, and 3,000 teaspoons are lost monthly. The life of a glass has been lessened since 1939 by about 70 per cent., and that of cups by about 50 per cent.

TASMANIA

Future Train Services

Professor Brian Lewis, Professor of Architecture at Melbourne University, during a recent address in Hobart, stated that the main line between Hobart and Launceston required much reconstruction. Because of the mountainous terrain it was most suited to electric traction, and he envisaged trains from Hobart to Launceston in two hours with two stops, as against 5 hr. 36 min. taken at present. With the diesel-electric equipment about to be delivered it would be possible to reduce the journey time between the two cities to 4 hr. 13 min.

Opportunities in Railway Service

A folder was recently distributed to the principal schools in Tasmania giving particulars of the wide variety of positions from which boys leaving school may select permanent employment, and pointing out that over £3,000,000 is being spent in providing new rolling stock, comprising diesel-electric locomotives, diesel railcars, steam locomotives, coaches, and

wagons, which will bring the railways up to the best modern standards in equipment. Plans are also being prepared for modernising workshops and improving the track. Vacancies exist for junior clerks, cadet engineers, apprentices, engine cleaners, and junior porters.

Diesel Motor Shop to be Built

During a debate in the House of Assembly the Minister for Transport announced details of a proposed £100,000 diesel motor shop to be constructed at Launceston. It would have an area of 24,000,000 sq. ft. and would be built of steel and concrete in the present railway workshops area. He said that by 1952 diesel and diesel-electric power on the railways would have increased from 3,500 h.p. to 24,000 h.p.

During the same debate the House also passed an item of £430,000 for the purchase of 380 wagons, as many as possible to be constructed in Tasmania. Of the 1,976 wagons in service at present, 933 are more than 50 years old. Comments were made that the new wagons would materially increase revenues and that the railways in Tasmania were a basic and essential medium of heavy goods haulage.

UNITED STATES

New Import Ore Pier

The Baltimore & Ohio Railroad is to begin work on a new import ore pier at Baltimore at a cost of \$5,000,000 and it will adjoin the export coal pier at Curtis Bay. The pier will be used for handling bulk import iron, and manganese and chrome ores, and will be the first of its type to be built by any railway on the Eastern seaboard.

ITALY

Additional Fare Facilities

Apart from the substantial fare facilities now obtainable on the State Railways during Holy Year, as mentioned in our issue of January 20, travellers from abroad, whether foreigners or Italians, entering the country between January 25 and April 15, 1950, will enjoy an extra 30 per cent. rebate, irrespective of class, in fares between any frontier station. This also applies to those who have stayed in Sicily for six days; tourists will be able to obtain a 30 per cent. rebate on the fares for any tour within Sicily. These facilities have been devised to stimulate international travel in Sicily.

Other facilities in force as from January 15, concern the granting of the usual 30 per cent. rebate for travellers in groups holding a return ticket; the minimum number of passengers forming a group has been reduced from ten to five. Groups may also consist of

foreigners originating their journey abroad and returning abroad. On the other hand, family tickets, for which the 30 per cent. reduction also is granted, are issued only to families residing permanently in Italy.

A new feature is the issue of 8-day and 15-day season tickets for distances up to 250 km. The price is equal to 35 per cent. and 65 per cent. respectively of a monthly season ticket for the same distance. Eight-day, 15-day, and monthly season tickets may be obtained at any station, without preliminary demand and form-filling plus guarantee deposit as is usual in Italy for other classes of season tickets.

Holders of weekly season tickets covering distances of more than 50 km. (31 miles) may use certain pre-determined fast trains. The use of the extra fast trains known as *direttissimi* and *rapidi* is excluded. The validity of return tickets issued abroad and covering any journey in Italy has been extended from three to eight days.

FRANCE

Rise in Transport Fares

The French National Railways have raised passenger fares for all classes. The new rates, which came into force on January 23, are, per km.: third class fr. 4, second class fr. 5.25, first class fr. 7.5, representing rises of fr. 1, fr. 1.05, and fr. 1.10 respectively. The percentage rise is less for the first and second than for the third class; the reason is that the number of first and second class passengers is constantly decreasing. Receipts from the first class have fallen to 2 per cent. of the total. It is claimed that the third class fare, now 13 times that of 1938, is still one of the lowest in comparison with other countries.

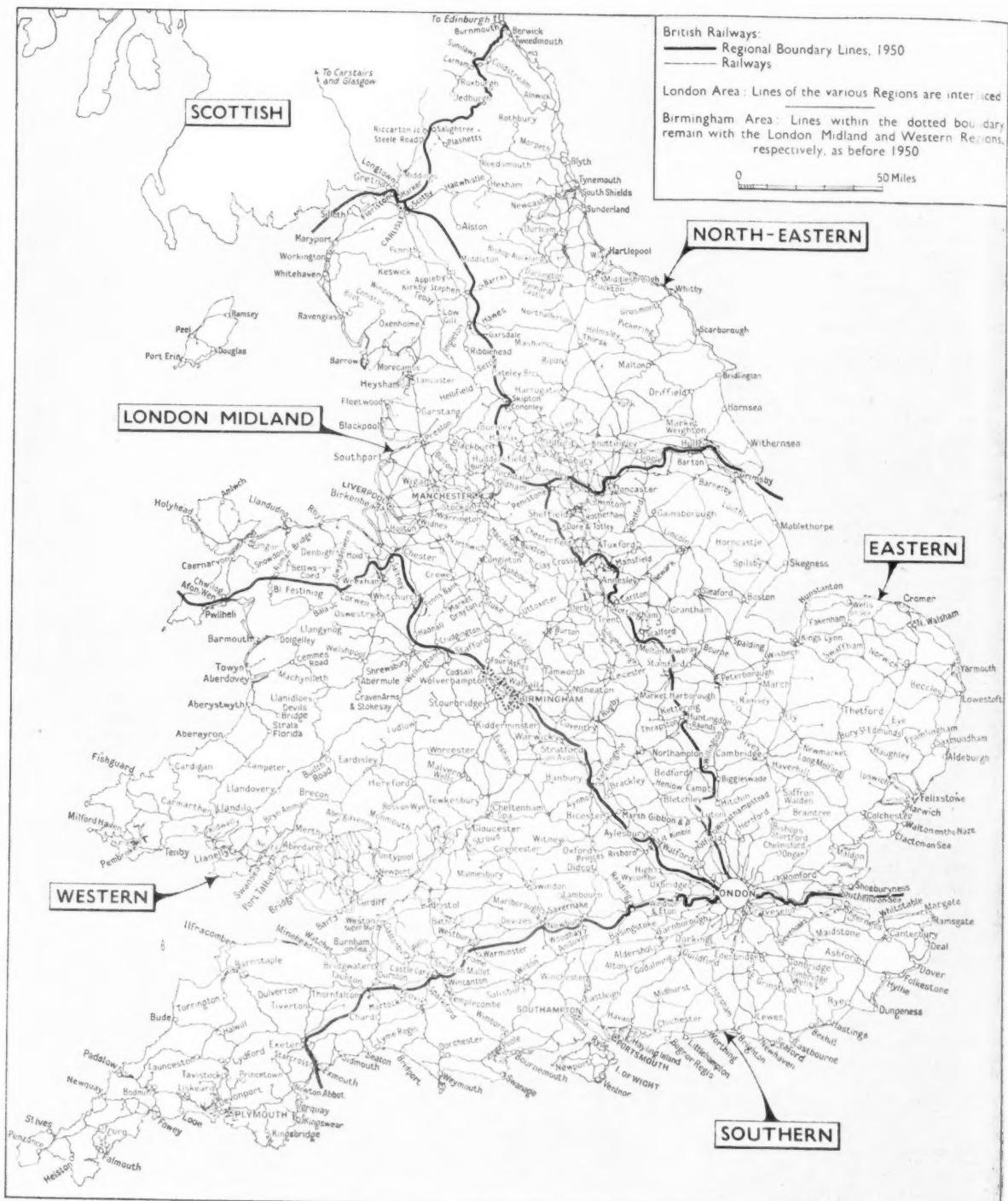
These rises apply to all railways except the Paris suburban lines. Fares for the suburban services were raised 40 per cent. on January 30. They are linked with the readjustment of the Paris underground railway and bus fares, which are also raised by approximately 40 per cent.

Workers travelling on the Metro, bus, and suburban railway lines are allowed a monthly bonus, which has now been raised from fr. 500 to 800. In addition to the transport bonus for workers, many passengers benefit by reductions allowed to members of large families, disabled veterans, and others.

GERMANY

Fluorescent Lighting to Replace Gas

A scheme has been evolved by the Federal Railways by which gas lamps still extensively used on passenger carriages are gradually to be replaced by fluorescent lighting. Passengers will be able to turn the light on or off.



Map showing British Railways Regional boundaries as from April 2, 1950

Revision of Regional Boundaries, British Railways

Transfer of administration of penetrating lines

As from April 2 next, an extensive revision of the boundaries of the Regions in which the administration of British Railways is organised under the Railway Executive will be made effective. The steps now being taken are designed to achieve a greater degree of unification and eliminate the overlapping of administration. The basis of the arrangements that have now been made is so to arrange administration and supervision that, as far as practicable, each Region of British Railways becomes self-contained.

On the opposite page a map is reproduced showing the new boundaries which will apply to the Regions, and a list of the more important lines and stations involved is given on this page. It will be seen that these lines are those which penetrate into territory which is overlapping or into territory which logically belongs to another Region. Lines or stations which formerly belonged jointly to two or more of the former railway companies, in each case have been placed under the supervision of a single Region, thereby achieving the desired simplification in administration.

The boundaries of the districts supervised by the district officers of the departments have been re-drawn where necessary to bring under the new Region those stations, depots, and other places of work which are transferred from another Region. The district officers will be responsible to the departmental officers of the new Region. The effect will be that in any particular territory, the whole of the railway activities will be under one administration and that the whole of the staff will belong to one Region.

Operating Arrangements

With regard to operating arrangements, over important lines with heavy flows of traffic, the existing operating arrangements for trains and traffic working will be preserved, including the existing operating motive power districts, divisions, and Regions. This decision has been reached because any change to existing practice would involve heavy cost in altering control equipment and interfere with train and traffic workings based on long experience.

One example of an important line of this kind is the former L.M.S.R. Birmingham and Bristol main line, which will continue to be operated by the London Midland Region, although it will come within the revised boundary of the Western Region.

Another example is the former L.N.E.R. (Great Central) line from London Marylebone to Manchester London Road. This will continue to be operated throughout by the Eastern Region, although the line in part will come within the revised boundaries of

the Western, London Midland, and Eastern Regions.

These lines will be termed "penetrating lines" and the operating and motive power officers will continue to exercise the same control over them as formerly, although the main principle will be applied to the extent that the departmental officer will report to the Chief Regional Officer of the new (or geographical) Region for those matters coming within the function of the Chief Regional Officer. For example, in respect to staff matters (promotion, redundancy, negotiating machinery, and so forth) staff employed on a penetrating line will be members of the new geographical Region. These arrangements are designed to ensure that in the operating department there will be no disturbance of the existing line of responsibility from station to district officer, divisional office and departmental office.

Commercial Activities

From the viewpoint of the public, one result of the changes now being made is that dealings will take place with only one district commercial officer and one regional headquarters, in all matters affecting the commercial activities of the territory. In the past it may on occasion have been necessary to deal with two, or in a few cases, three commercial officers.

On the staff side, instead of the present four sectional councils for each group of staff covered by the negotiating machinery, there will be six—one for each Region. In future, stations and depots of all the former companies in the territory comprising a particular regional district will form one promotional area and all posts in that area under each of the separate promotion schemes will be open to any individual in that area and scheme. Provision has been made in the present arrangements whereby staff who may wish to remain with their former Region, should have an opportunity of exercising their choice.

Matters of this kind have been discussed at length between the Railway Executive and the trade unions and when it is possible to ascertain the numbers of staff who may wish to take advantage of this option, further consideration will be given to the best means by which the transfer may be effected.

Detailed Instructions

Detailed instructions of all new arrangements and re-organisation are being sent to all concerned in the changes, including staff whose personal position may be affected by them. Every member of the railway staff is being sent a copy of a pamphlet outlining the changes and the reasons for them. Chief Regional Officers and

others are making arrangements to meet representatives of the staff to explain in detail the re-organisation and to assist in full understanding of the principles involved.

Below is the list referred to of the lines and stations which will be transferred. It will be remembered that in the great majority of cases, they are penetrating lines, and therefore will continue to be operated by the first-named Region. Exceptions are the last three in the list which are complete transfers from the Western Region to the Southern Region.

Adjustments to Boundaries

- Eastern Region to London Midland Region*
 - Mill Hill to Edgware
 - Hill End to St. Albans London Road
 - Harpenden East (Herts.) to Dunstable
 - The former Great Central line: Quainton Road (Bucks.) (exclusive) and Ashendon Junction (Bucks.) (exclusive) to Heath (Derbyshire) (exclusive)
 - Marefield Junction (Leicestershire) to Leicester Belgrave Road
 - All former L.N.E.R. lines in the region of Nottingham and Derby west of Netherfield, Leen Valley, Bilshorpe, and including Pleasley and Mansfield Central
 - Hazelhead Bridge to Manchester London Road and to Manchester Central via Fairfield Junction and Levenshulme South
 - Metropolitan & Great Central line: Rickmansworth (inclusive) to Quainton Road (Bucks.) and Verney Junction (Bucks.)
- Eastern Region to London Transport Executive*
 - Metropolitan & Great Central line: Harrow to Rickmansworth (exclusive) and Watford
- Eastern Region to North-Eastern Region*
 - The former Great Central and Great Northern lines north of Barnsley (Old Mill Lane)—Mexborough—Doncaster
- Eastern Region to Western Region*
 - Marylebone to Northolt Junction
 - Neasden to Harrow (exclusive)
- London Midland Region to Eastern Region*
 - Willington (Bedfordshire) to Cambridge
 - Raunds (Northants) to Huntingdon
 - Thorpe (Northants) to Peterborough
 - Wakerley (Northants) to Wansford
 - Morcott (Rutland) to Peterborough
 - Edmondthorpe (Lincolnshire) to Little Bytham (Lincolnshire)
 - Carlton & Netherfield (Notts.) to Lincoln Whitefriars
 - Farnsfield (Notts.) to Rolleston (Notts.)
 - Shirebrook West (Derbyshire) to Shireoaks (Notts.)
 - All former L.M.S.R. lines north and east of Hasland, Dore & Totley, Sheffield and Barnsley
- London Midland Region to North Eastern Region*
 - All former L.M.S.R. lines north of Penistone, Darfield, and Denaby, and east of Diggle, Eastwood, and Skipton
- To North Eastern Region*
 - The line Shaftholme Junction (Yorkshire) to Knottingley (Yorkshire)
- London Midland Region to Western Region*
 - Hadley Junction (Shropshire) to Coalport
 - All former L.M.S.R. lines south-west of Selly Oak to Bath and Bristol (including branches) and Broom to Byfield (Northants) (exclusive)
 - Warwick Milverton Station
 - Leamington Spa Avenue Station
 - Banbury Merton Street Station
 - Bicester to Oxford
- North Eastern Region to London Midland Region*
 - Kirkby Stephen East to Appleby and Clifton Moor
 - Kirkby Stephen East to Tebay
- Southern Region to Western Region*
 - Cole (Somerset) to Bath, including Bridgwater
 - Burnham and Wells branches
 - All former Southern Railway lines west of Exeter, Cowley Bridge Junction
- Western Region to London Midland Region*
 - Crudgington to Nantwich
- Western Region to Southern Region*
 - Thornfalcon (Somerset) to Chard Central
 - Thorney & Kingsbury Halt (Somerset) to Yeovil
 - Sparkford (Somerset) to Weymouth, including Bridport, Abbotsbury, and Easton branches (Dorset)
 - Grafton & Burbage (Wiltshire) to Andover Junction, including Tidworth branch
 - Newbury (exclusive) to Winchester Cheesewhill
 - Reading West (exclusive) to Basingstoke branch
 - Westbury (exclusive) to Salisbury

Repair of Locomotive Plate Frames

Recent developments in welding technique resulting from experiments carried out at the Crewe works of the London Midland Region

THE demand for more power has caused locomotive plate frames to show signs of distress, and a considerable amount of frame cracking was experienced on the former L.M.S.R., resulting in an increase in the volume of repair work and reduction of locomotive availability. A joint investigation in which Chief Mechanical Engineers and the Research Departments collaborated was put in hand to find a solution to this problem.

It is the practice in the L.M.R. works to keep a complete history of the behaviour of the frame of each locomotive, and on the history cards is

recorded every flaw occurring on a frame, together with the extent and date of occurrence. The first step in the investigation was a statistical analysis of the defects for each of the main classes of locomotive, and among the trends noted were the following three points, which have had a bearing on the development of the modern practice of frame welding repairs:

(1) Frame cracks are of the progressive type due to fatigue of the material and originating at regions of local stress concentrations.

(2) The number of frame cracks in any engine class is related to the age of a frame. A period of years may elapse before any cracks occur, but in classes prone to fracture, the incidence of

cracking has a tendency to increase with the age of the frame.

(3) There is a marked tendency for cracks to recur where previous fractures had been made good by welding.

Welding repairs prior to the time of the investigation had consisted mainly of welding simple fractures. Where, however, a number of fractures occurred in the same region, or when previous welds had re-fractured, the practice has been to weld in a new frame leg piece of the type shown in Fig. 1.

Where Cracks Occur

There was no direct evidence from the frame history cards to show exactly where a crack recurred in the vicinity of a previous weld, but general observations indicated that most cracks occurred at the edge of a weld, i.e., in the position where undercutting coincided with a metallurgical change of structure. Some cracks did, however, recur in the weld metal, and it was considered that the main reasons for the increased rate of incidence of fractures in frames which had been repaired by welding were defective welds, inherent lower strength of weld metal as compared with rolled frame plate, and residual stresses set up during a welding repair.

A preliminary X-ray investigation indicated that weld defects were present in some welds, the main defects being lack of fusion at the root of welds, associated with slag inclusions and some internal cracking, undercutting at the edges of welds, slag inclusions in the body of the weld metal, and slag inclusions associated with contraction cracks starting from slag pockets in corner welds.

Several features stood out in the X-ray photographs regarding the occurrence of lack of fusion and slag pockets. If A.B.C.D., Fig. 1, represents a new section of frame plate welded into a frame, the main positions in

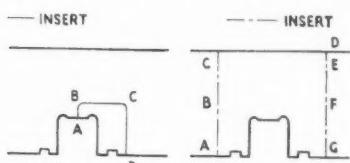


Fig. 1

Fig. 2

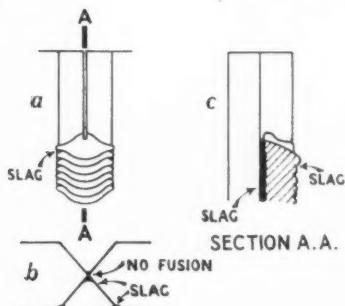


Fig. 3

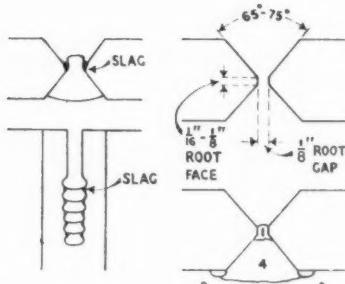


Fig. 4

Figs. 5 and 6

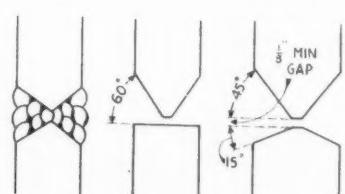


Fig. 7

Fig. 8

Fig. 9

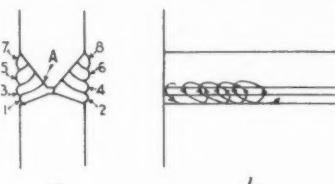


Fig. 10

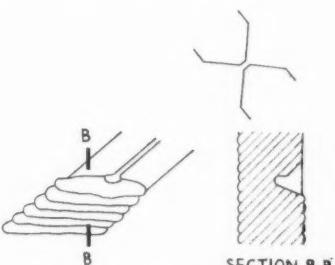


Fig. 11

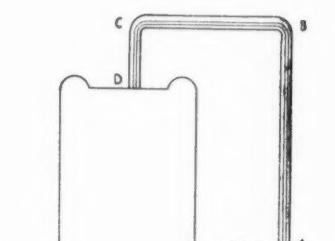
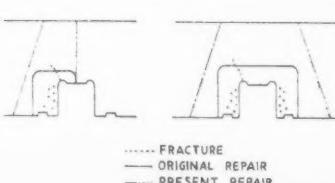


Fig. 12



Example 3

Fig. 13

Examples 1 and 2

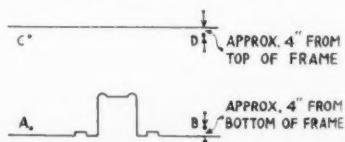
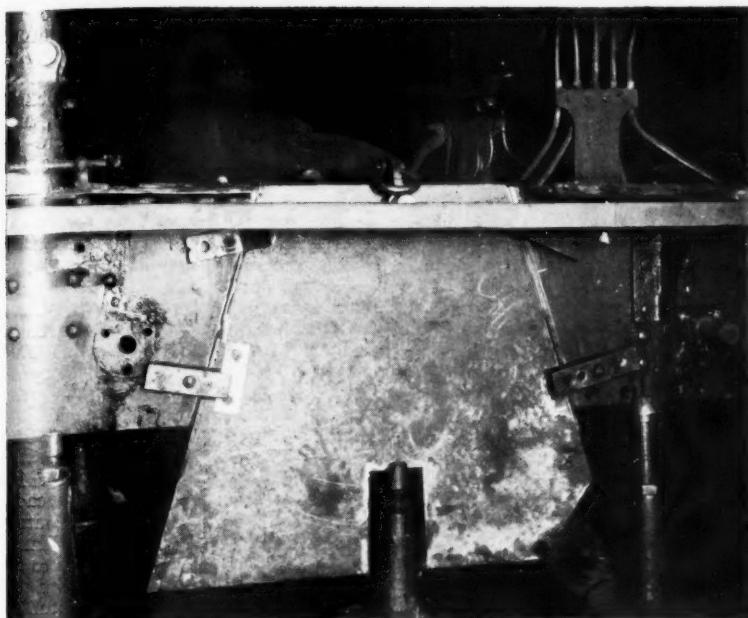


Fig. 14

— FRACTURE
— ORIGINAL REPAIR
— PRESENT REPAIR



Single horn full insert, with gap on the left hand only

which serious defects occurred were at the corners B. and C., and along the horizontal leg B.C. of the insert. These positions offer most difficulty to the welder, but it was considered that provided the positions were accessible, the preparation suitable, and the correct technique adopted, then satisfactory welds could be made.

Accessibility was often affected by the amount of stripping carried out on the frame; a double Vee preparation was used when possible, but in certain cases a single Vee preparation was unavoidable. No limits were laid down for the form of the Vee or the root gap and these factors were subsequently proved to be of major importance. It was considered that the general welding technique was, broadly speaking, correct, and that most of the defects apparent in the radiographs and not directly attributable to wrong preparation, were due to lack of attention to small details such as careful linking up of sections of weld or inefficient de-sludging.

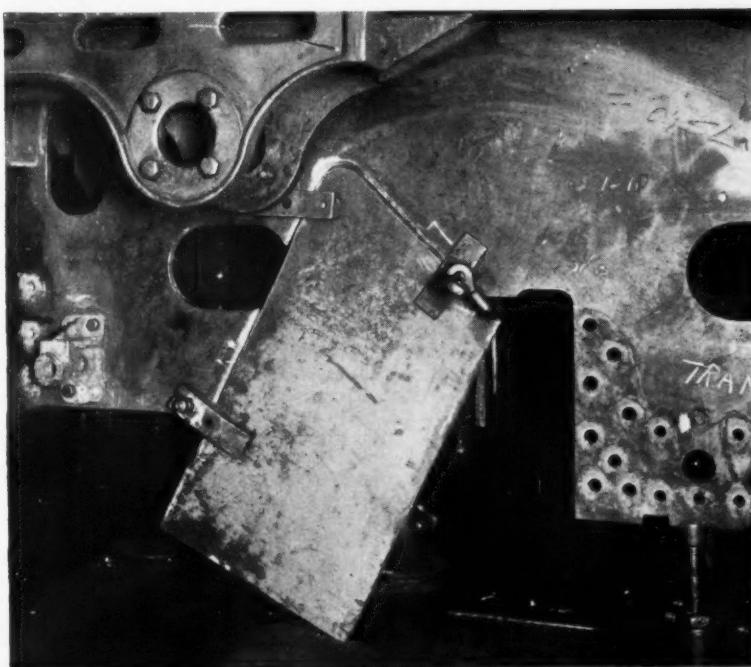
Having in mind the above features a thorough investigation into the question of frame welding was carried out at Crewe works. Detailed attention was given to typical frame welding repairs. The welds were subsequently subjected to X-ray examination and the results checked against the technique adopted, while the circumstances in each case were examined in the light of workmanship and resultant frame length. From the details so obtained, suitable types of standard frame welds were developed, together with limits for preparation and the welding technique to be followed.

During the early stages of the investigation, no effort was made to alter the technique normally adopted, so that a link up between the defects and

their causes could be established before attempting to correct the defects. Although most lines of development were running concurrently, and are, in fact, closely inter-related one with another, they are discussed separately for the sake of clarity.

Vertical Welds

Fig. 2 indicates a typical frame repair involving vertical welds only. The original preparation was a full chamfer double Vee with approximately 60 deg.



Inverted Vee insert, with inclined weld and bevel on original frame plate

included angle and a nominal root gap of $\frac{1}{8}$ in.; the repair was carried out by two welders working simultaneously on the inside and outside of the frame using No. 6 S.W.G. electrodes.

Although the weld preparation allowed $\frac{1}{8}$ in. nominal gap, because of the difficulty of preparing and movement of the insert during welding, both narrow and wide gaps were encountered. It was found that a narrow gap Fig. 3 resulted in:

- (1) Lack of fusion at the root of the Vee combined with slag inclusions.

When the first run was made, it was impossible for the welder to push the electrode down to the bottom of the Vee, and arcing occurred on the sides of the Vee. Some slag fell behind the weld metal and was not removed by the welder on the reverse side since the joint was close and the slag unseen; in this respect neither the use of high current nor a small gauge of electrode gave satisfactory results.

- (2) Slag inclusions in the first run and the reinforcing run.

In an effort to obtain root fusion, there was a tendency for the welder to direct his arc towards the root of the Vee exclusively, with the result that the shape of the bead was as shown in Fig. 3b, with well-marked slag pockets down the sides, Fig. 3a, and with slag lines transverse to the line of welds under folds of the weld metal, Fig. 3c. The slag under the folds of the weld metal was removed to a certain degree by the downward reinforcing run dependent on the size of the folds of weld metal.

A wide gap, Fig. 4, was found to cause heavy slag inclusions at the root of the weld. When the first run was made, and the arc was directed on to

the feather edges at the root of the Vee, the edges fell away and formed relatively large globules of metal on the reverse side of the weld. Slag adhered to these globules, and ordinary de-slaggering with a packing hammer failed to remove all the slag, with the result that it was covered up by the welder working on the reverse side.

These defects were directly attributable to the form of preparation and the alternative shown in Fig. 5 was suggested as more suitable. This preparation was found to be quite satisfactory from the point of view of adequate root fusion, freedom from porosity, and slag at the root of the weld. Several points bearing on this

cessive gaps, i.e., over $\frac{1}{4}$ in., should not be used. With a view to reducing the tendency for a gap to close in front of the weld the general technique was altered. The first operation was to seal the joint with a downwards run with a No. 6 S.W.G. electrode, run No. 1, Fig. 6. In addition to sealing the joint and preventing closure of the gap, this run was smooth, easily de-slaggered, and left no slag pockets.

The question of small slag pockets under the folds of metal in the main upward run was corrected by making an upwards reinforcing run; in this way the arc was directed into the folds from the under side and washed away any slag which was found there. The

normal welding procedure was to fill up the Vee with stringer runs without weaving, as indicated in Fig. 7. With this procedure, humped beads were produced which caused slag pockets both above and below the bead, and the resultant welds showed more or less continuous lines of slag along the weld; furthermore, with a narrow gap, lack of fusion also resulted.

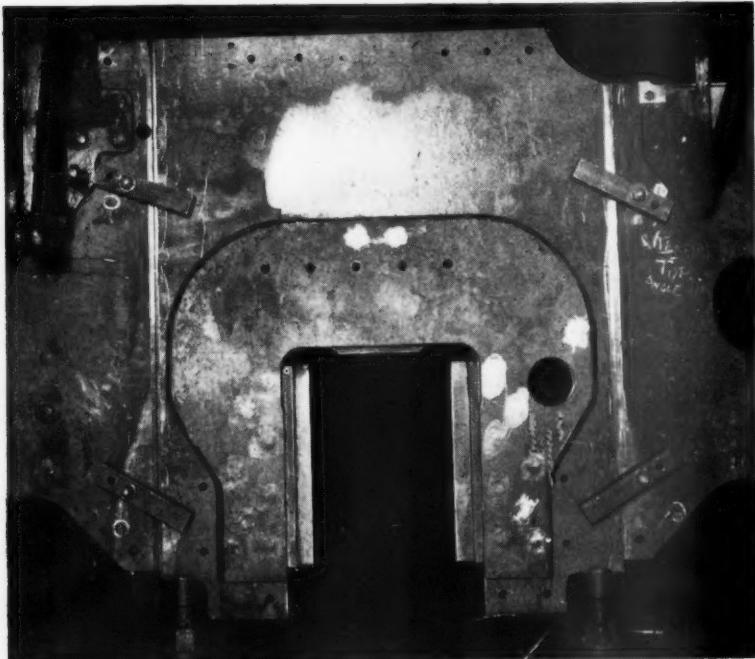
Test Piece Welding

The preparation shown in Fig. 8 was next tried on a test piece, and showed a considerable improvement, but there was a tendency for slag lines to form on the lower side of the weld. This appeared to be due to the tendency of the slag to adhere to the bottom plate during welding.

The preparation shown in Fig. 9 was then tried, and the technique was altered to that indicated in Fig. 10. Instead of welding with stringer beads, the gap was closed by one operator, run 1, with a weaving run. A small slag pocket was formed at A due to an undercut, but this was minimised by holding the electrode at an angle of 45 deg. to the line of weld in a horizontal plane, and at the same time weaving as indicated in Fig. 10b.

All subsequent runs, with the exception of runs 7 and 8, Fig. 10, were made in the same way, the weaving action washing out any slag which may be trapped at such positions as A.

With regard to welds inclined at an angle of more than 20 deg. to the vertical, the standard preparation of a double Vee full chamfer leaves a very bad position on the left-hand side of a weld inclined as in Fig. 11. The metal overhangs the puddle and gives a form of semi-overhead welding and tends to form slag drops. It was found that the preparation developed for horizontal welds when used with the welding technique laid down for vertical welds gave a satisfactory result.



New patch plate complete with axle box guides fitted, ready for welding

form of preparation arose in practice:

(1) Difficulty of preparing both frame plate and new piece to the accuracy demanded. In this respect, it was found that a root gap up to $\frac{7}{16}$ in. could be handled satisfactorily by experienced welders, but that a gap less than $\frac{1}{8}$ in. invariably resulted in lack of root fusion.

(2) In certain cases where a weld had to be made between tack welds, the root gap diminished in front of the weld line, due to expansion of the plate.

(3) The movement of a plate while one weld on a plate was being made affected the gap on the other weld or welds. In the same way any opening of the frame for keeping the datums correct also affected the gap on the closing leg.

Several vertical welds made with varying gaps indicated that the root gap should be maintained at $\frac{1}{8}$ in. min., any inaccuracy in chipping to be on the side of an increased gap, but ex-

natural development suggested by this procedure was to fill up the Vee completely and leave the necessary reinforcement with the single upward run. It was found, however, that with this technique a bad undercut resulted at the sides of the weld.

To eliminate this, small beads, runs 2 and 3, Fig. 6, were made down each side of the joint before commencing the main upward run. The undercut then occurred in the small beads and was not below the plate surface.

The following technique was, therefore, recommended as giving satisfactory results. The runs are to be made Fig. 6 in the order indicated and in the directions quoted:—Run 1, downwards; run 2, downwards; run 3, downwards; run 4, upwards. This technique should be applied to vertical welds and to welds inclined at not more than 20 deg. to the vertical.

The standard preparation for horizontal welds prior to the investigation was double Vee full chamfer, and the

Welding of Corners

Slag traps are easily formed when making welds round corners, but a technique was developed which appeared to give satisfactory results when properly applied. Referring to Fig. 12, showing a frame insert with two vertical and one horizontal weld, the technique to be adopted is:—

(1) Make the vertical weld from A-B. B is part-way round the corner and is in line with the top of the insert.

(2) Put in a tack weld at C in line with B.

(3) Make the whole of the weld C-D as a horizontal weld.

(4) Make the vertical weld D-C.

When a good corner weld was made subsequent careful radiographic examination showed no indication whatever of cracking.

It was recommended that in all cases sufficient weld metal be deposited to allow the weld to be dressed flush with the plate without necessitating the use of an extra reinforcing run. When a reinforcing run was required, it was

found to be better to weld upwards, as downward reinforcing runs gave rise to slag pockets.

Flame gouging was tried as a means of preparing both the frame and the insert for welding. The method adopted was to flame-cut the frame and the insert with square edges, and then assemble, leaving the necessary gap. Both plate and inserts were then gouged in position to give the required preparation.

Some difficulty was at first encountered with the manipulation of the gouging blowpipe, but this was overcome, and a satisfactory preparation was obtained. Definite recommendations in this respect were not made as the cases were affected by the type of insert fitted into the frame.

As new frames have a definite crack-free life, it was considered that with large inserts welded into a frame and so arranged that all the defective material is removed and the welds located in positions where cracking does not normally occur, then an equal length of time may be anticipated before cracking recurred.

The above principle governed the decisions made relative to suitable forms of insert to be fitted under specific repair conditions.

Vertical Welds

Other factors were also taken into account. Throughout the investigation, it was obvious that vertical welds or welds slightly inclined to the vertical were easier to make than horizontal and steeply inclined welds, and that the corners where horizontal and vertical welds met were probable sources of trouble due to cracking. Straight-sided inserts had the advantages of allowing preparation by machining, were the easiest type of insert to fit, and allowed accurate gap allowances to be made.

The following examples indicate the type of repair originally effected and the type of repair standardised as a result of the investigation.

The repairs shown in examples 1 and 2 were regarded as the ideal and were always adopted when practicable; the repair shown in example 3 was regarded as a first compromise with ideal conditions and was only to be adopted when an excessive amount of stripping would be involved to carry out a repair such as example 1.

Gap Allowances

The shape of the insert affects the amount of gap to be left on each weld as set up for welding, so that the recommended gaps can be obtained during welding. For example, referring to Fig. 13, showing an insert with one vertical and one slightly sloping weld, if a gap of $\frac{1}{8}$ in. was allowed on both welds AB and CD before commencing to weld, then after making weld AB there would be an excessive gap for weld CD due to contraction across weld AB, and the opening of the weld CD to compensate for contraction.

It was therefore recommended that in all cases, the insert should be prepared to give a gap of $\frac{1}{8}$ in. min. on one weld and no gap on the other weld.

After a frame has been levelled and datummed, but before any preparation is made for carrying out a welding repair, a standard trammel length is marked across the horn gap as indicated by AB, Fig. 14. When a full section of frame is to be inserted such as those shown in examples 1 and 2, a trammel length such as CD is also marked on the frame.

Attention was paid to the choice of the most suitable types of electrode, both AC and DC welding being used.

There is a tendency to grind into the plate at the edge of the welds. Final grinding is always arranged to leave the grinding marks running longitudinally relative to the plate. Care is taken to leave a flush finish at the edges of the plate or the weld; on no account is any undercutting tolerated on the edge of a plate.

The corners of all inserts are rounded to a radius of $\frac{1}{16}$ in. as is the practice on all new frame plates. Experience has shown the truth of the premises made when developing the above-mentioned types of frame repair, and the volume of repair work has in consequence been reduced. Further developments have been



View of front weld showing accuracy of fit up to original frame

Since all the welding was carried out in a vertical plane, and the two-operator technique adopted resulted in localisation of the welding heat, relatively low currents were used. The use of high currents as a means of obtaining root fusion was unsatisfactory as the metal in the weld puddle became too fluid. The recommended current settings for the 6 SWG electrodes used were 150-160 amps. with an arc voltage of 26-30.

All welds are dressed flush with the plate after welding. This may be done by grinding, or by chipping and grinding, the latter method being preferred as the more economical and efficient method. When grinding alone is used,

made, however, in the type of insert to be fitted in the light of increased experience in the handling and control of contraction across full frame depth welds.

Fully machined and fitted full horn inserts have been fitted experimentally, and, having proved satisfactory, are in the course of establishment as standard repairs.

The procedure adopted for fitting such inserts is as follows:—

First, the frame is levelled from front to back, and transversely with all stands taking equal weight. In this position the frame is datummed and the height above rail level noted. The in-

(Continued on page 193)

Mobile Workshops for Rhodesian Railways Road Transport

Facilities to expedite repairs to feeder transport services operating in remote country districts



Mobile workshop body mounted on Thornycroft chassis

THE Rhodesian Railways have recently added to their fleet of Thornycroft vehicles, two mobile workshops, supplied to the requirements of Mr. F. E. Hough, Chief Mechanical Engineer, which are required to expedite repairs to vehicles now being used for cross-country transport of passengers and freight, operating as feeder services in districts remote from the principal railway depots at Salisbury, Bulawayo, and other centres.

The bodies, which were built by Normand Limited, Park Royal, London, N.W.10, have been mounted on Thornycroft chassis, model R.F./N.R.6, fitted with a standard cab; the internal dimensions of the workshops body being 23 ft. 10 in. x 7 ft. 2 in. wide x 6 ft. 6 in. high at the centre of roof.

Chassis Design

The chassis is of 3-axle design, with a double drive having a third differential fitted in the foremost rear axle; the front axle is a single forging, steel axle swivels being carried on parallel swivel pins with a steep angle taper roller bearing at the top and a plain phosphor bronze bush at the bottom which supports the radial and vertical loads. The hubs are carried on taper roller bearings.

The rear bogie consists of two axles of the fully floating type with drop forged casings and overhead worm gear; the worm gears and differentials can be withdrawn without removing the road wheels. Worm shafts and differentials are carried on ball bearings and the wheel hubs on taper roller bearings. A third differential is fitted in the foremost bogie axle ensuring equal driving results from each wheel, and allowing

each wheel to rotate at a speed suited to its diameter, thus eliminating undue tyre wear.

Two inverted semi-elliptic springs, pivoted at their centres to brackets rigidly attached to the chassis frame, are designed to give even distribution of weight on all four wheels of the bogie under all conditions, irrespective of the relative movements of the axles; the ends of the springs are attached to the axles with large ball trunnions to eliminate twist being transmitted to the springs. The driving and braking torques from each axle are transmitted through an "I" section radius arm

coupled to the centre cross tube of the bogie by a link fitted with flexible rubber bushes. The link is positioned so that the angular and axial deflections of the rubber bush are half the axle deflections; suspension is designed to permit a 12 in. difference in wheel levels diagonally and a 6 in. difference in axle levels. The body frame is manufactured of pressed steel with substantial cross bracing giving an extremely rigid construction without excessive weight.

Workshop Equipment

The chassis incorporates a 6-cylinder oil engine rated at 100 b.h.p., and the mobile workshop body is 23 ft. 10 in. long, 7 ft. 2 in. wide, and 6 ft. 6 in. high at centre of roof. The body framing is constructed of steel sections panelled on the outside in aluminium superimposed on $\frac{3}{8}$ -in. resin-bonded plywood; the roof is of 18-gauge aluminium with $1\frac{1}{2}$ -in. Isoflex lined in plywood. Four fixed toughened-glass windows in metal frames are fitted to each side of the body. Four top-hinged lift-up flaps have also been fitted to the body sides, and the downward flaps of timber fitted below the waist rail are supported by chains and hooks.

The floor is of 1-in. thick hardwood suitably treated with preservative, and ventilation is supplied by two electric fans with cowls on the outside of the body; a 10-gal. galvanised water tank is mounted on the roof at the front end of the vehicle. Two rear doors are fitted, access to the workshops being by means of a detachable steel ladder carried on the vehicle, and a locker is fitted below the body floor for carrying cargo cluster lights. The exterior is painted and varnished in golden yellow and the interior is finished in pale



View of the mobile workshop with side flaps and rear door opened, showing ascending ladder in position



Interior view of mobile workshop showing the grinding section

cream. The workshop equipment has been painted light battleship grey.

The equipment includes a 15 k.v.a. 220/230 volt single-phase 50 cycles generating set, and there is a Lister three-cylinder diesel engine with radiator and fan cooling, and a governing speed of 1,000 r.p.m. Mounted on the same bed plate is an alternator, direct coupled, screen protected, complete with exciter; the control board, mounted near the alternator, is equipped with ammeter, voltmeter, voltmeter fuse, frequency meter, Ironclad switch fuse, and a hand and automatic voltage regulator.

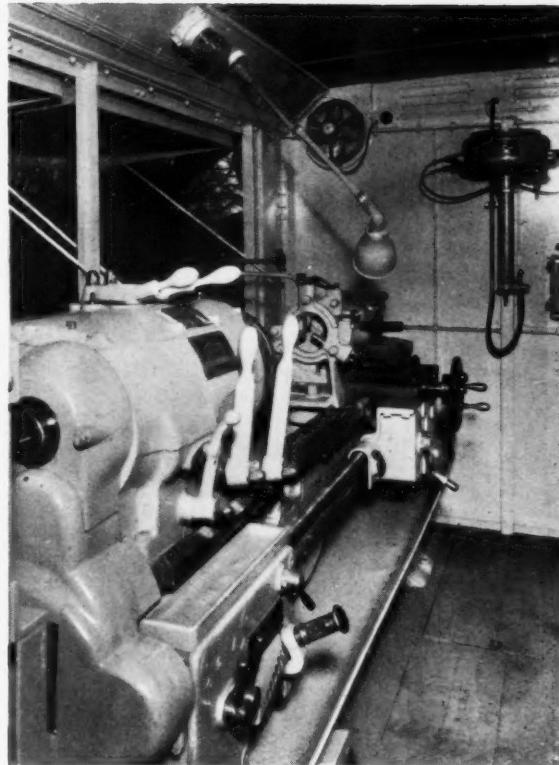
A battery charger, capacity twelve 6-volt at 6 amps, or six 6-volt batteries at 12 amps., fitted with two rectifying

valves giving full wave rectification, steel charging benches with lead-coated trays, also form part of the equipment. A Bristol, type A.4, single-cylinder air-cooled compressor, driven by an electric motor through Vee belts, with a displacement of 9 cu. ft. per min., at 100 lb. per sq. in., equipped with an air suction filter and automatic inlet unloader, with an air receiver, 36 in. × 15 in., mounted under the body, also forms part of the equipment; provision has also been made carrying oxygen and 2-cycle acetylene.

A United Services type oxy-acetylene welding and cutting outfit with a range of heads suitable for welding up to $1\frac{1}{2}$ in. thick in mild steel, and cutting up to 12 in. thick in mild steel, has been

supplied by the British Oxygen Co. Ltd. as part of the equipment. Among the machine tools with which the mobile workshops is equipped are an 8½-in. centre lathe, driven by a 5-h.p. motor, a pillar drill and Black & Decker grinding machines; the equipment for valve seat and valve refacing has also been supplied by the firm of Black & Decker.

Ample provision has been made for the provision of tool cupboards, fitters' vices and benches, portable drills, cargo lights, and testing equipment. Drinking water is provided by a Manesty-type electric water still having an output of 7-8 pints an hour, and a capacity of 10 gal.; the heater has also been fitted with a low-water alarm.



Centre lathe and the electric water still fitted with low-water alarm

Repair of Locomotive Plate Frames

(Concluded from page 191)

sert position is marked off from a standard template, and lines are struck on the plate 2 in. beyond the insert position; trammel marks are made near the top and bottom of the frame beyond the insert position.

The section of the frame to be replaced is removed by oxy-cutting and the plate ends are prepared to a form gauge; the gauge is made to register on the end of the plate and also on the line previously marked on the frame 2 in. from the insert position. A standard insert is prepared, fully

machined and with horn blocks fitted. The insert is made to the same overall size as the piece removed from the frame, and is assembled in the frame with no gap at either weld joint; the height above rail level is checked and short trammel marks, for the convenience of the welders, are marked across both the front and back weld joints.

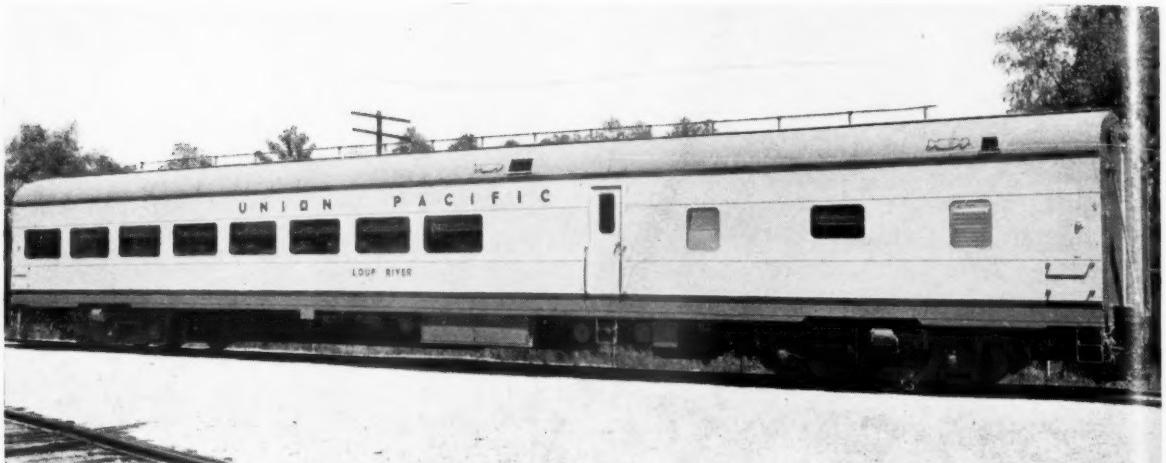
The frame is then forced open at the front weld joint to give a gap of $\frac{1}{8}$ in. ± any allowance required to lengthen or shorten the frame as indicated by the original datum of the frame. The front weld is completed and allowed to cool to shop tempera-

ture. The welding technique is similar to that originally developed for welded inserts; when the weld has cooled a gap of approximately $\frac{1}{16}$ in. is apparent on the rear weld.

The rear weld is controlled by the overall trammel. The frame is forced open to give $\frac{1}{8}$ in. lengthening on this trammel length, which results in a gap opening of approximately $\frac{3}{16}$ in. on the rear weld.

The rear weld is then made and allowed to contract freely. Finally, the welds are chipped and ground to give a flush finish on the surface and edges of the plate with minimum radius of $\frac{1}{16}$ in. on the plate edges.

Lounge Cars for Pacific Coast Trains



One of the new cars built by the American Car & Foundry Company to provide dining and lounge facilities on Chicago & North Western and Union Pacific trains



Dining and lounge sections of one of the A.C.F. cars in service on the "City of Portland" and "City of Los Angeles" streamline trains between Chicago and Pacific Coast cities

RAILWAY NEWS SECTION

PERSONAL

Brigadier James Storer, who is Vice-Chairman of the Vulcan Foundry Limited, and a Director of Robert Stephenson & Hawthornes Limited, Antofagasta (Chili) & Bolivia Railway Co. Ltd., Great Western of Brazil Railway Co. Ltd., Dorada Railway Co. Ltd., La Guaira & Caracas Railway Co. Ltd., Nyasaland Railways Limited, and other companies, is leaving shortly for a tour of the U.S.A. and South American republics.

Mr. R. W. J. Mackay has been appointed Chief Electrical Engineer of the New South Wales Government Railways, on the forthcoming retirement of Mr. W. L. Ada.

Mr. L. Meara, Road Transport Controller, Scottish Region, British Railways, has retired, after over 50 years railway service.

Mr. G. K. Howard has joined the board of the Ford Motor Co. Ltd.

Mr. H. A. A. While has been appointed London Manager of the United Steel Cos. Ltd. He will remain in charge of the Railways Department.

Mr. D. W. Hammond has been appointed Works Director, and Mr. C. Whitaker, Production Manager, of William Jessop & Sons Ltd.

Mr. V. A. Lowinger retired recently from the Chairmanship of the International Tin Research & Development Council, which controls the Tin Research Institute, as he is no longer permanently resident in England. His successor is Mr. G. F. A. Burgess, a Joint Managing Director of the British Metal Corporation Limited.

Mr. J. U. Vass, who for the past twenty-eight years has been Works Manager of the Fraserburgh Factory of the Consolidated Pneumatic Tool Co. Ltd., has retired from that position, but remains a Director of the company. Mr. A. M. Vass has been appointed Works Manager of the Fraserburgh Factory.

The council of the Institute of Transport has appointed Professor G. Lloyd Wilson and Colonel F. C. Horner to represent the Institute at the annual meeting of the American Academy of Political & Social Science at Philadelphia on April 14 and 15, 1950. Professor Wilson and Colonel Horner were the delegates at the 1949 meeting.

CANADIAN NATIONAL RAILWAYS

The following staff changes are announced by the European Manager, Canadian National Railways: Mr. J. A. Cross to be District Traffic Agent, Glasgow, succeeding Mr. J. M. Blair, who is retiring at his own request on account of health; Mr. A. A. Masey to be District Traffic Agent, Southampton, succeeding the late Mr. F. E. Birch.

Mr. William Marshall Clark, O.B.E., B.Sc. (Eng.), M.I.C.E., M.Inst.T., hitherto General Manager of the South African Railways, who, as recorded in our last week's issue, has been appointed Interim Secretary-General of the Central African Transport Conference, which will meet in Johannesburg next October, is at present in Paris for discussions. In the course of a recent statement, announcing the appointment and the decision to hold

battalion (S.A.E.C.); he served with that battalion in East Africa, as Second-in-Command, and later proceeded to Egypt, where the battalion was reformed into a Railway Construction & Maintenance Group (S.A.E.C.), of which he became Officer Commanding. Shortly afterwards he proceeded to Palestine and Syria, where he undertook the construction of the section between Haifa and Beirut (85 miles) of the strategic Haifa-Beirut-Tripoli Railway. For distinguished services in the Middle East he was made an O.B.E. During his absence on active service Mr. Marshall Clark was appointed System Engineer, Durban, and subsequently Inspecting Engineer, New Works, Johannesburg. On his recall to civil duty in 1942, he was transferred to the General Manager's Office as Chief Works & Estates Officer. Later he was made Controller of Ship Repairs and in October, 1943, became Chief Technical Officer (Reconstruction). Mr. Marshall Clark was appointed General Manager in October, 1945.

Mr. F. Yeo-Thomas, G.C., has been appointed representative of the Federation of British Industries in Paris.

Mr. H. Whitehouse has been appointed a Director of Hallam, Sleigh & Cheston Limited. He has had 36 years service with the company, and for a considerable time has been engaged on the sales side, in which activity he will continue.

Dr. F. D. Richardson has relinquished his position as Head of the Chemistry Department, British Iron & Steel Research Association, and has been appointed Nuffield Research Fellow in Extraction Metallurgy at the Royal School of Mines, London. Dr. J. Pearson has been appointed Head of the Chemistry Department of the B.I.S.R.A., in succession to Dr. Richardson; he has been Head of the Chemistry Section of the B.I.S.R.A. laboratories at Sketty Hall, Swansea, since 1946.

INSTITUTION OF LOCOMOTIVE ENGINEERS

The council of the Institution of Locomotive Engineers has made the following nominations, which will be put to a general meeting to be held on March 2 next, to fill vacancies occurring at the end of the present session (May 31, 1950):—

President: Mr. R. A. Riddles; Vice-President: Mr. J. F. B. Vidal; Members of Council: Messrs. J. F. Alcock, J. F. Harrison, Randolph J. Harvey, M. S. Hatchell, H. Holcroft, W. F. McDermaid, W. L. Watson, E. A. Robinson, E. Pugson, R. A. Smeddle.

The following remain in office for another year or longer:—Vice-Presidents: Messrs. R. C. Bond, C. M. Cock, K. J. Cook; Members of Council: Messrs. R. Arbuthnott, D. C. Brown, A. Campbell, E. S. Cox, I. C. Forsyth, G. C. Gold, W. G. Hornett, L. J. Le Clair, J. H. P. Lloyd, W. H. W. Maass.



Mr. W. Marshall Clark

Hitherto General Manager, South African Railways, who has been appointed Interim Secretary-General, Central African Transport Conference

the conference in Johannesburg in October, the South African Minister of Transport said that a permanent organisation would then be set up, under a Secretary-General, who would be its executive head; South Africa had been asked to appoint an interim Secretary-General, who would presumably become the permanent head after the October conference. Mr. Marshall Clark is a son of Mr. W. H. Clark, who was a well-known railway engineer, and himself started his railway career as a pupil engineer in 1921, after having graduated in engineering at the University of Cape Town. After he had served for a number of years on construction and maintenance work, he took charge as Resident Engineer of a new works office controlling all major new works on the Witwatersrand, established at Germiston. In 1940 he was entrusted with the task of forming and equipping units to comprise the Railway & Harbour Construction Bat-



H.E. Abdel Meguid Pacha Badr
General Manager, Egyptian State Railways, who has retired



Dr. Sayed Bey Abdel Wahid
Appointed General Manager, Egyptian State Railways

H.E. Abdel Meguid Pacha Badr, General Manager of the Egyptian State Railways, who, as recorded in our issue

of December 30 last, has retired on health grounds. is a graduate of the Royal Polytechnic of Egypt, and was an engineer in

the railway service until appointed Secretary to the Light Railways Commission, and, afterwards, Technical Secretary to the Minister of Communications. He was three times chosen as Minister of Social Affairs, Industry & Commerce, and Finance. On the retirement some two years ago of Mahmoud Shaker Pacha, General Manager of Railways, Abdel Meguid Pacha was appointed to succeed him. During his period of office the section of the Palestine Railways within Egyptian territory was taken over by the Egyptian State Railways, as well as the military line from Mersa Matruh to Capuzzo. Abdel Meguid Pacha also prepared a scheme for the construction of a railway through the Nubian countries to connect Shellal with Wadi Halfa, a route at present served by Nile steamers belonging to the Sudan Government.

Dr. Sayed Bey Abdel Wahid, who, as recorded in our issue of December 30 last, has been appointed General Manager of the Egyptian State Railways, is an engineer, who has specialised in bridge and concrete construction, and is a graduate of the Royal Polytechnic of Egypt. In 1928 he was selected as adviser to a technical bureau in Switzerland, and later became Assistant Professor to Dr. Max Reuter at Zurich University. In 1930 he obtained his degree as doctor and returned to Egypt, where he became Chief Engineer for Bridges of the State Railways. He undertook the construction of three important railway bridges, at Nag Hammadi, Kafr el Zayat, and over the Suez Canal at El Ferdan. In addition, two subways under railway lines in Cairo were planned and built by Dr. Sayed Bey. His last post with the

Naming of 2000th North British Locomotive for South Africa



Group at the naming ceremony of the 2000th locomotive built by the North British Locomotive Co. Ltd. for the South African Railways (see paragraph, page 197)

Left to right: Dr. J. H. Botha, Member, South African Railways Board; Mr. W. Marshall Clark, then General Manager, South African Railways, and now Interim Secretary-General, Central African Transport Conference; Dr. F. de Paulo Brito, Portuguese Minister Plenipotentiary; Mr. Paul Sauer, South African Minister of Transport; Sir Andrew Duncan, Director, North British Locomotive Co. Ltd.; Mr. W. D. Lorimer, Managing Director, North British Locomotive Co. Ltd.

Egyptian State Railways was as Deputy General Manager, before he was selected as Under-Secretary of State for Communications, and then for Finance, the position he has held until returning to the State Railways as General Manager.

Mr. C. R. Dunn, lately European Representative of British Timken Limited, has been appointed Sales Manager, Fischer Bearings Co. Ltd. (a subsidiary of British Timken Limited).

Dr. F. J. Paton, Director of Research of the Dunlop Rubber Co. Ltd. plantations in Malaya, has left to take up his duties in the new Rubber Research Centre which the company is about to open in Negri Sembilan.

Sir Cecil Weir, Chairman of the Dollar Exports Board, announced recently that an enlarged executive committee was being set up to attend to the development of exports to the dollar area. It consisted of business men of experience who would give their time voluntarily; some of the members would undertake special functions, and others would make continuous contacts with groups of British industries to familiarise themselves with their problems. The members of the committee are:—

Sir Leonard Browett, Director, National Union of Manufacturers; Mr. E. A. Carpenter, President, Manchester Chamber of Commerce; Mr. C. B. Colston, Chairman & Managing Director, Hoover Limited (alternate: Mr. W. C. Puckey, Director, Hoover Limited); Mr. C. B. Dyson, formerly Chief of Commerce Division, Control Commission for Germany (British Element); Mr. Laurence Heyworth, Director, Lever Bros. & Unilever Ltd. (alternate: Mr. Howe Martyn, of Lever Bros. & Unilever); Sir Norman Kipping, Director-General, F.B.I.; Mr. A. R. Knowles, Secretary-General, Association of British Chambers of Commerce; Sir Percy Lister,

Chairman & Managing Director, R. A. Lister & Co. Ltd.; Mr. H. S. Mackintosh, Group Controller, Overseas Division, Pinchin Johnson & Associates Limited; Sir Leonard Paton, Director, Harrisons & Crosfield Limited; and Mr. F. S. Stratton, Managing Director, Upsons Limited.

NAMING OF 2,000TH NORTH BRITISH LOCOMOTIVE FOR SOUTH AFRICA

As recorded in our last week's issue, the 2,000th locomotive built by the North British Locomotive Co. Ltd. for the South African Railways was recently named *Bartholomew Diaz*. Among those who attended the ceremony were Mr. Paul Sauer, South African Minister of Transport; Dr. J. H. Botha, Member, South African Railways Board; Mr. W. Marshall Clark, hitherto General Manager, South African Railways, and now Interim Secretary-General, Central African Transport Conference; Dr. F. de Paulo Brito, Portuguese Minister Plenipotentiary; Mr. W. D. Lorimer, Managing Director, North British Locomotive Co. Ltd.; and Sir Andrew Duncan, a Director of that company (see illustration on page 196).

After 45 years of dealing with the movement of tea by rail for 100 London tea firms, Mr. Thomas Harper, British Railways London Midland Region representative, has retired.

Mr. B. A. Wright, Parcels Agent for British Railways at 14, Bishop's Bridge Road, W.2, for the past two years, and formerly holding the same post for the Great Western Railway since 1941, has retired after nearly 50 years' service.

Mr. T. A. Carson, B.A., B.A.I., A.M.I.C.E. (I.), who has been appointed Chief Assistant to the Civil Engineer, Great Northern Railway (Ireland), was educated at Trinity College, Dublin, and

in 1929 received professional training under the late Mr. John Miller, then Engineer, North Eastern Area, L.N.E.R. He was appointed a Junior Assistant with the G.N.R. (I.) in 1930, and became Permanent Way Assistant in 1939.

The retirement is announced of Mr. M. B. Davy, a Director of Shell-Mex & B.P. Limited.

Mr. J. M. Kesson, B.Sc., A.M.I.C.E., Assistant Engineer, East African Railways & Harbours, who, as recorded in our January 27 issue, has been appointed District Engineer, Mombasa, is a graduate of Glasgow University, and received his early engineering training as a pupil with Warren & Stewart, Consulting Engineers, and subsequently in the office of the Divisional Engineer, Glasgow, London Midland & Scottish Railway; in 1935 he was appointed temporary Assistant Engineer in the same office. In 1937 Mr. Kesson became Civil Engineering Assistant in the Chief Engineer's Office of the Ministry of Transport. Two years later he was seconded from the Ministry of Transport to the Kenya & Uganda Railways & Harbours as an Assistant Engineer, and later accepted a permanent post in the Colonial Service.

Mr. W. L. W. Freeman, District Traffic Superintendent, East African Railways & Harbours, who, as recorded in our January 27 issue, has retired, received his early training with the Midland Railway in England. He joined the Tanganyika Railways (now part of the East African Railways & Harbours) as a clerk in 1926. He was promoted Assistant Traffic Superintendent in 1936, and District Traffic Superintendent in 1945. On several occasions he acted as Traffic Manager of the Tanganyika Railways.

Presentation by Southern Region Officers to Mr. John Elliot



Mr. John Elliot, until recently Chief Regional Officer, Southern Region, has been presented with a pair of antique table lamps by officers of that Region on his leaving to take over as Chief Regional Officer, London Midland Region. Left to right: Mr. R. P. Biddle, Docks & Marine Manager, Southern Region; Mr. Elliot; Mr. R. M. T. Richards, Deputy Chief Regional Officer, Southern Region

Inauguration of Chittaranjan Works, India

The construction of the first State-owned locomotive manufacturing works in India is making rapid progress

On January 26, when India became a republic, an inaugural ceremony took place at the new locomotive manufacturing works at Chittaranjan. The name, previously Mihijam, is in memory of the late Chittaranjan R. Das, a nationalist and Congress Party leader, whose widow Shrimati Basanti Devi inaugurated the works by starting an automatic lathe in the light machine shop.

Mr. P. C. Mukerjee, the General Manager, first made a short speech, followed by a reply from Shrimati Basanti Devi which was read by her daughter. The lathe was then started and after a few words from Mr. Venkataraman, the Chief Mechanical Engineer, the visitors were conducted round the works. Several guests had come from Calcutta for the occasion and Mr. J. E. Bagguley, the technical consultant appointed by the Locomotive Manufacturers Association of Great Britain which is providing a team of specialist advisers for the works, had flown from England.

The project and the aid which the L.M.A. is giving were commented on in our November 11 issue.

The works are situated on the East Indian Railway in the Burdwan district of West Bengal, close to Bihar. The site is only about 10 miles from coalfields and near to the steel-producing centres of Asansol and Tatanagar; it was selected in October, 1947, and orders for work to begin were given in the December.

In the works the light machine shop is the only building complete and many machines are already installed in it; some are now turning out duplicate parts for the Assam and East Punjab Railways. The other buildings are in an advanced stage of construction except the main assembly shop, but steel for this is now arriving steadily at the site and being rapidly erected.

The arrangements made for water supply consist of a 50 ft. high dam across the bed of one stream, and a submerged weir and infiltration galleries in the bed of a second and larger stream. The dam is complete and work on the weir is in hand.

The townships surrounding the factory are to contain 6,000 houses, many of which are complete. Progress on the remainder is rapid and full use is being made of hollow concrete blocks which are being turned out in large numbers from two plants installed on the site. The smallest type of quarters has two main rooms and costs Rs. 3,600 a unit. Other quarters are being built of brick. Good progress has been made with road building and tree planting. A club and a rest house are in use.

Eventually, power will be obtained from the hydro-electric plants to be installed by the Damodar Valley Corporation in connection with its river control schemes. There is a standby thermal station already operating in the works and colony.

The programme is to complete all steel erection of the works buildings by the end of May this year, and go into production in the following autumn. At first the works will re-assemble "WG" class 2-8-0 locomotives which have been manufactured and stripped again in the United Kingdom and shipped in parts to India. This will enable experience to be gained at Chittaranjan of the assembly of the type of locomotive that will at first be

manufactured there. Fabrication of components of this "WG" class (the present standardised goods engine on Indian railways) will then be undertaken progressively as the works become progressively operative, and skilled men become available or are trained. Eventually, each year 120

complete locomotives and 50 spare boilers will be turned out. The total cost of the project has been estimated at over Rs. 14 crores.

The whole colony has been planned on generous and modern lines with the comfort and welfare of the workers given every consideration. The workshop buildings are all of steel construction, with asbestos cement roofing and cloaking with north lighting. The floors are concrete. The lighting is ample and machines have been generously spaced.

Wireless Contact for Shunting Operations

A method of two-way radio communication between yardmaster and engine drivers

Two-way frequency-modulated v.h.f. radio apparatus recently installed experimentally on a diesel shunting locomotive at Willesden, London Midland Region, British Railways, consists of a control station with transmitter, receiver, and power supply contained in a metal cabinet, and a remote-control unit, together with a similar installation on the locomotive. Working frequency is in the new v.h.f. band 156-184 Mc/s now permanently allotted to this service. The equipment was designed and supplied by the Plessey Co. Ltd., Ilford, Essex, and embodies the experience of the Bendix Corporation in this field.

The four-valve, crystal-controlled transmitter, giving an unmodulated r.f. output of 10 W., employs frequency modulation with a two-stage compressor circuit in the modulator amplifier. The master control unit may be up to 50 ft. from the transmitter, and it incorporates a loudspeaker which also serves as a "talk-back" microphone, volume control, and so on. The remote-control unit may be several miles away, with connection by telephone; it provides all the facilities of the master control. Up to three such units may be used with any one transmitter. A loudhailer and handset with moving-coil microphone enable the point controller to maintain contact. A selective calling system may also be incorporated, giving communication with any one or all of a total

of 90 units, each consisting of one or more mobile stations.

The receiver employs 15 or 17 valves, depending on the incorporation of selective calling facilities, and is crystal-controlled. The F.M. receiver results in minimum interference from adjacent power cables and telephone lines, and zero interference from weaker stations on the same channel, while it is claimed that spurious responses and adjacent channel interference are much reduced.

The control station aerial is about 7 ft. long and of 2 in. dia. steel tube. It can be mounted directly on a similar steel tube or wooden mast; if on the former, the lead to the aerial may be run inside the mast.

Installation on Locomotive

The transmitter, receiver, and power supply unit on the locomotive are housed in a weather-proof container, with aerial adjacent, on the front casing (or boiler). Employing 15 or 17, and four valves respectively, the crystal-controlled receiver and transmitter are each mounted on a cradle, which in turn is mounted on shock-proof supports. All are easily removed. With an output rating of 10 W., the transmitter has a total consumption of 150 and 225 W. on stand-by and transmission respectively when operated on d.c. supply from 24 to 110 V. It can be operated on 6- or 12-V. d.c. supply when the power



View of radio telephone in locomotive cab showing post-office type handset. In a permanent installation the connections would be sheathed

consumption is lower. Other power units can also operate on 50/60-cycle main supply or from a 24-V. high-frequency supply for use with a steam turbo-alternator.

The control unit is mounted in the cab and connected by a multi-core cable in conduit. It incorporates volume control. A loudspeaker for incoming calls is mounted in the cab roof, and a handset is provided in the cab. The aerial is about 11 in. long and of 2½ in. dia. steel tube; metal parts are bolted direct to the locomotive frame.

TRANSPORT COURSE AT ASHridge COLLEGE.

The Institute of Transport is co-operating in the arrangements for a course on "Transport Problems," which is to be held during the weekend, September 8 to 10, at Ashridge College.

UNITED STATES COAL STRIKE.—An agency message from New York states that drastic cuts in U.S.A. railway services have been ordered or forecast as a result of the coal strike involving 360,000 of the 400,000 soft-coal miners. The New York Central cancelled 45 passenger trains as from midnight on February 7. Last month the railway withdrew 147 trains because of reduced coal production. In Philadelphia a Pennsylvania Railroad official predicted that additional curtailments would have to be made if the strike continued. The Chesapeake & Ohio, which serves 350 major soft-coal mines, said that the shutdown had been responsible for "the immediate idling of several thousand employees."

Proposed Increase in Freight Charges

Conclusion of evidence before the Consultative Committee on the application by the B.T.C. for increased dock charges

On February 8, members of the Transport Tribunal sitting as a Consultative Committee, concluded the hearing of the application by the British Transport Commission for an increase in railway rates and charges for merchandise by goods and passenger train, and in dock and canal charges. The inquiry into railway charges concluded on January 20, and on February 7 the hearing of the application for increased dock and canal charges began.

Sir Bruce Thomas, K.C., Chairman of the Committee, presided on February 8, when the inquiry was resumed, and Sir Robert Letch, Deputy-Chairman of the Docks & Inland Waterways Executive, was recalled for further examination by Mr. J. P. Graham, for the B.T.C.

Sir Robert Letch said that the differential in the basic rates in dues on coastal vessels would be about 20 to 25 per cent. of the full rate for overseas vessels at the B.T.C. ports. The average toll on coal moved by canal from collieries to power stations was 10d. a ton and that was not more than 25 per cent. of the total carriage charge.

Mr. Roland Adams, K.C., for the Chamber of Shipping and the Traders' Dock & Harbour Co-ordinating Committee, asked for the retention of the existing differential in favour of coastwise shipping. He stated that retention of this relationship would cost the Commission only £35,000. He also asked the Com-

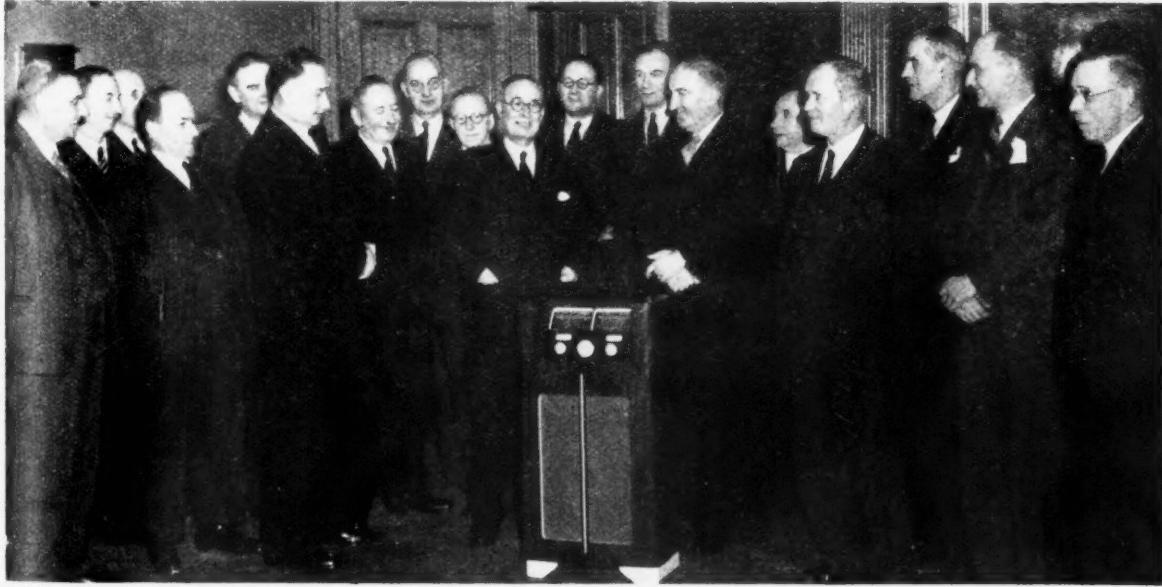
mittee to recommend that the definition of coastwise shipping should be made to include traffic with Eire. He submitted that traders could not be indifferent to threatened increases in dock charges as they would represent another twirl upwards of the inflationary spiral.

Mr. J. C. Leonard, for the National Coal Board, stated that the Board did not dispute the claim to raise additional revenue as an aid to balancing its accounts. It considered that one of its functions was to watch the interests of the consumer by seeing that coal prices were kept as low as possible. The present proposals would add £70,000 a year to costs and consumers would have to bear extra transport costs of £125,000 a year. Any increases in transport rates should be mitigated as far as possible. Any transport increase in the price of coal must at this juncture have an important reflection on the export of coal.

Mr. E. S. Fay, for the British Electricity Authority, submitted that toll charges should not be raised by the same amount as other rates. The canals had been losing traffic for many years, and an attempt should be made to regain this loss, by reducing the scale of tolls if need be. If this plea could not be granted, a differential rate should be given to coal traffic on canals.

Mr. Graham, replying, said that no substantial case had been made out by the opponents to damage or modify the

Presentation to Dr. T. C. D. Watt



A group of officers of the Scottish Region, including Mr. T. F. Cameron, Chief Regional Officer, on the occasion of a presentation to Dr. T. C. D. Watt, Regional Medical Officer, on his recent retirement

Left to right : Messrs. H. G. Sayers, Operating Superintendent ; R. M. Scott, Assistant Estate and Rating Surveyor ; E. C. Dewick, Estate and Rating Surveyor ; I. R. Frazer, Assistant Civil Engineer ; Captain H. J. Perry, Marine Superintendent ; Mr. T. H. Moffat, Deputy Chief Regional Officer ; Dr. Sharp, Assistant Medical Officer ; Messrs. M. Wallace, B.T.C. Legal Service ; J. Hastie, Treasurer ; Dr. T. C. D. Watt ; Messrs. G. E. Beynon, Chief of Police, Scottish Area, B.T.C. Police ; L. E. Marr, Assistant Commercial Superintendent ; T. F. Cameron ; R. D. Kerr, Assistant Marine Superintendent ; G. S. Bellamy, Mechanical and Electrical Engineer ; J. G. Dunlop, Accountant ; A. Stewart, Assistant to Chief Regional Officer ; W. Bryson, Signal and Telecommunications Engineer

claim. If the Tribunal recommended that traffic with Eire should be classified as coastwise, the B.T.C. would raise no objection. This change would mean that the loss caused by retaining the existing differential on coastwise vessels would be nearer £45,000 than £35,000.

Mr. Graham said of the suggestion to reduce toll charges, that stated traffic on canals could not increase until there were more vessels and terminal facilities for loading and discharging. These could not be provided during the period when the additional revenue was required.

Inter-Dominion Transport in Bengal

Communication between India and Pakistan in the eastern side of the sub-continent is becoming increasingly difficult. The railway and waterway routes from Calcutta, in India, to Assam, also in India, pass through East Bengal, a province of Pakistan. As a result of differences about the inter-Dominion transfer of jute caused by devaluation of the rupee by India, but not by Pakistan, India has stopped coal supplies to Pakistan but the latter is purchasing coal from abroad, although deliveries take probably at least six to eight weeks.

The Eastern Bengal Railway has therefore been compelled to cancel certain trains, four of which are trains running from East Bengal to Sealdah, the Calcutta terminus on the east bank of the river Hooghly. India complains that these trains were cancelled without prior advice to its railway authorities.

The more important mail trains between the Dominions are still running, but, as a result of the difference in the value of the rupee in India and Pakistan, through tickets are no longer issued. Passengers have to alight at the frontier and buy a new ticket for the remainder of their journey in the other Dominion.

On the route from Calcutta Sealdah to Siliguri in India, the broad gauge rail-

head for Darjeeling, which passes through East Bengal, there is now another complication. This route was broad gauge throughout, and, starting in India, entered Pakistan and then, at the end of the run, passed through some 50 miles of India, although this section was worked by the Eastern Bengal Railway (Pakistan). From the Northern boundary of Pakistan at Haldibari to Siliguri, India closed the main line to convert it to metre gauge. Here, the Pakistan authorities claim that this closure was made without reference to them. The conversion of 40 miles to metre gauge took six days.

The opening of the Assam rail link, by filling gaps between existing railways and converting broad-gauge sections to metre gauge, gives an all-India rail route from Calcutta to Assam, but involves transhipment at the crossing of the river Ganges where there is a change of gauge. In December, 1949, the line was opened to goods traffic and on January 26, 1950 (Republic Day) to passenger traffic. The journey takes 24 hr. more than the route via Pakistan and at the same time is many miles longer.

When India devalued, Pakistan did not. The cost to India of Pakistan jute, which is of high quality and is the chief export of Pakistan, therefore rose considerably. India ceased buying it and supplies ceased, both by rail and water. India complained that Pakistan had also detained jute purchased and paid for before devaluation, and in spite of representations, would not release these consignments. This was the direct cause of the stoppage of coal supplies to Pakistan. Although some, if not all, of this jute bought before devaluation has now been released, coal supplies are still banned and there is now no goods traffic by rail, river or sea between the two Dominions.

Air services operating between Assam and Calcutta (both in India) are flying oranges and jute into Calcutta over Pakistan. In spite of the cost of air freight the traffic will bear it. Two- and four-engine aircraft are used on this run, of

which two have had forced landings en route. Presumably, in time a solution to the present impasse will be found, but from a transport point of view, the present situation must be regarded as most unsatisfactory.

LAGOS HARBOUR CONTRACT.—A contract valued at more than £2,500,000 for the extension of Lagos Harbour, Nigeria, has been awarded to Pauling & Co. Ltd. The work includes a deep-water quay, a lighter wharf, dredging and reclamation, railway sidings, roads, and sheds.

INSTITUTE OF TRAFFIC ADMINISTRATION—The 1950 annual conference of the Institute of Traffic Administration will be held in London from June 1 to 4, with headquarters at the Kingsley Hotel, Bloomsbury Way. The programme will include visits to London Transport depots and London airport, as well as papers by Mr. Frederick Smith and Mr. R. P. Vogels, Public Relations Officer, Royal Dutch Airlines. The Institute's annual dinner will be held on the evening of June 3, and the annual general meeting on June 4.

TRANSPORT OF LIQUID RUBBER.—Liquid rubber is now being transported by rail in bulk in tank wagons for the first time in this country. Six special vehicles, each having a capacity of 9,625 gal., built jointly by British Railways and H. Diaper (Bulk Liquids) Limited, of Liverpool, began operating on February 7 on the London Midland Region between Liverpool Docks and storage tanks at Kirkby, from which point the rubber is being distributed in small lots. The method of collection from steamer is by pumping the latex from ship tank to rail tank. It is hoped that, when the use of liquid latex expands, and manufacturers are in a position to receive in one delivery 10,000 gal. or more, these wagons will be used in transporting the latex direct from steamer to factory.

Transport of Liquid Rubber



Liquid rubber in bulk is now being transported by rail in the London Midland Region, British Railways, special wagons of nearly 10,000 gal. capacity each having been built for this purpose (see paragraph above)

Notes and News

Jugoslav and Roumania Convention Protest.—Jugoslavia has formally protested against cancellation by Roumania on January 17 of the Railway Convention between the two countries.

Draughtsman (Civil Engineering) Required.—A draughtsman (civil engineering) is required by the Nigerian Government Railway for one tour of 18 to 24 months in the first instance. See Official Notices on page 203.

Hadley Wood Goods Depot to be Closed.—As from March 1, Hadley Wood Goods Depot, Eastern Region, will be closed. Goods traffic previously dealt with at Hadley Wood will be dealt with at the Eastern Region New Barnet Goods Depot.

Institution of Civil Engineers.—A paper on "Mechanical Handling of Parcels and Mails" will be delivered before the Institution of Civil Engineers, Great George Street, London, S.W.1, at 5.30 p.m. on March 7, by Messrs. J. V. Franklin and J. H. Mahy.

Institute of Transport.—Lord Latham, Chairman, London Transport Executive, will be the speaker at an informal luncheon which will be held by the Institute of Transport at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.45 for 1.15 p.m. on February 28.

Railway Students' Association.—On March 8, at 6 p.m., Mr. M. A. Cameron, Principal Traffic Officer, British Transport Commission, will read a paper on "Central and Regional Organisation of Transport," before the Railway Students' Association, London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2.

B.E.A. Traffic in 1949.—Last year British European Airways carried 709,203 passengers—143,746 more than in 1948—and handled 4,829 tons of freight as compared with 3,584 tons in 1948. The total distance flown on European and United Kingdom routes rose by 2,803,495 miles to 15,156,101. On the Continental services the mileage during the year was 10,205,280 against 6,988,877 in 1948, and on the internal routes 4,950,821 against 5,363,729 the previous year.

Engineering Works between Berwick and Dunbar.—Due to engineering work in connection with the erection of permanent bridges between Berwick and Dunbar, Scottish Region, certain trains will be diverted via Tweedmouth and Kelso on Sundays from February 19 to May 21, with consequent increases in journey times. A rail service will be provided to convey passengers between Tweedmouth and Berwick where necessary. The seven permanent bridges to be placed in position will be of welded girder construction and will replace temporary structures referred to in an account of the flood damage and temporary works in our October 29, 1948, issue. The bridge at Grantshouse, which has a total weight of 400 tons, is being built on trestles beside the line and will be rolled into position immediately the temporary bridge is dismantled, probably on Sunday, April 9. The remaining bridges are now being made by contractors and will be conveyed to their sites in sections. It is not anticipated that any of these bridges will take more than about 36 hr. to erect and it is intended to have all the work completed and the line re-

stored to first class condition before the commencement of the summer services on June 5.

Belfast Association of Engineers.—The annual dinner and dance of the Belfast Association of Engineers will be held at 7.30 for 8 p.m. on March 3, in the Grand Central Hotel, Belfast.

S.M.T. Preference Stock.—The directors of the Scottish Motor Traction Co. Ltd. announce that proposals are at present being considered "in an endeavour to reach agreement with the preference stockholders on repayment terms which might be mutually acceptable to them and to the ordinary stockholders." A further announcement will be made as soon as possible and pending this announcement preference stockholders have been advised not to dispose of their stock.

Southport to Crossens Train Service.—As from February 12 the electric train service on the London Midland Region Southport to Crossens line has been withdrawn on Sundays, though the six steam trains in each direction are continuing to run. Certain weekday electric trains on this section also were withdrawn as from February 6. The single fare by bus between Southport and Crossens is 3d., compared with 8d. for the train fare, though the railway runs a 7d. return cheap ticket after 9.30 a.m.

Increased Length of Buses.—Mr. Alfred Barnes, Minister of Transport, announced on February 10, that four-wheel public service vehicles first registered on or after June 1, 1950, will have an increased permitted maximum length. The increased lengths were decided on after consultation with the manufacturers and operators' associations, and existing regulations concerning length will be amended. Four-wheel double-deck vehicles will be 27 ft. long instead of 26 ft. previously permitted, and four-wheel single-deck vehicles

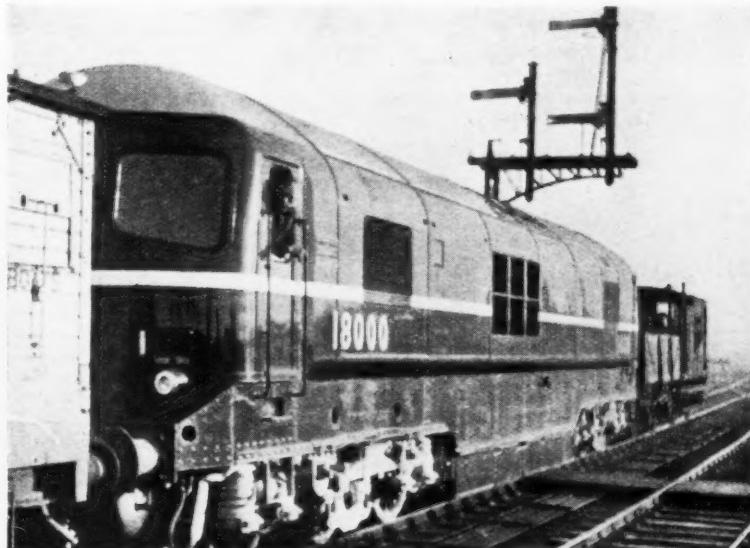
will be 30 ft. instead of 27 ft. 6 in. as previously permitted. Mr. Barnes is to consult the Commissioner of Police, London, on the question of single-deck vehicles, as at present all four-wheel vehicles operated by the London Transport Executive are restricted to a maximum of 27 ft. 6 in. The Minister signified his approval of the increases in double-deck vehicles some time ago and the longer vehicles are being built. Existing vehicles will not be affected by the amended regulations. The effect of the increased length of single-deck buses and coaches is expected to be an increased carrying capacity of 10 per cent.

McNamara & Company: Additional Payment.—A further payment is announced of 5s. per stock unit to members of McNamara & Co. Ltd. in voluntary liquidation consequent on the taking over of the business by the British Transport Commission. When the sale of the undertaking was announced in November, 1948, a return of about 33s. per 12s. unit was expected; the additional 5s. per unit, together with 25s. paid to stockholders in February, 1949, brings the distribution to members in the liquidation to 30s. a unit.

B.T.C. Buys Red & White Transport Co. Ltd.—The sale of the whole of the share capital of ten companies of the Red & White United Transport Co. Ltd. to the B.T.C. for £4,565,155 was approved at a meeting of the shareholders on February 7. The purchase price is payable as to £61,855 in cash, and £4,503,200 in British Transport 3 per cent. guaranteed stock, 1968-73. The company retains its interests in various manufacturing concerns, and is also to develop public transport in the Commonwealth.

Another Steel Production Record.—Steel output last month was at the annual rate of 15,873,000 tons, which compares with 15,002,000 tons for the same month last year. Production last month therefore was

British Gas-Turbine Locomotive



Western Region gas-turbine locomotive No. 18000 passing South Tottenham Station, L.M.R., on February 5, on its way from Harwich to Swindon

[Photo]

[J. McCarthy]

the highest for any January. The production for 1950 has been set at 15,750,000 tons and so the industry has started off the year with an output in excess of the target. Sir Ellis Hunter, President of the British Iron & Steel Federation, has sent a telegram to each of the steel ingot producing firms congratulating them on a good start to 1950.

Dukeries Junction Station to be Closed.—As from March 6, Dukeries Junction passenger station, Eastern Region, will be closed to the public; the nearest alternative stations are Tuxford Central and Tuxford North. Hitherto, Dukeries Junction has been used as a transfer point, and from March 6 all fares quoted via Dukeries Junction will be withdrawn.

Cheap Air Fares to Paris.—Air France has recently introduced cheap excursion fares to Paris from Birmingham, Manchester and Glasgow, on the lines of those already operating from London. Fifteen-day return fares are provided from Birmingham at £15 10s. instead of £18 and from Manchester at £17 10s. instead of £19 16s. On the Glasgow-Paris service the special fares are £23 10s. as against £28 16s., and will be valid for thirty days; the non-stop Glasgow-Paris service reopens on April 16.

Metropolitan Surplus Lands Subsidiary.—The directors of the Metropolitan Railway Surplus Lands Company say they have been advised that the investment in, and loan to, the subsidiary, Ortem Estates, are *ultra vires*, and that they have directed the board of Ortem to make no further purchases and to take steps to realise the assets and repay the loan. The directors of Ortem Estates are satisfied that within a year sufficient assets can be realised to repay the whole of the loan and that the realisation will result in a small surplus. A report will be circulated with the accounts of the parent company for the year ending March 31.

Staff Discussion Meeting in Scottish Region.—In the Scottish Region recently a second meeting for the purpose of promoting greater co-operation between management and staff was held in Glasgow. Mr. T. F. Cameron, Chief Regional Officer, presiding. Mr. R. F. Harvey, Motive Power Superintendent, Mr. E. A.

Milne, Carriage & Wagon Engineer, and Mr. J. G. Bothwell, Railway Clerks' Association Secretary for Scotland, addressed the meeting, following which a general discussion took place between departmental officers and staff representatives.

French Railcars Collide.—Eighteen persons were killed and 46 injured in a head-on collision between two railcars near Albi early on February 11. The accident occurred on a single-track line between Toulouse and Carmaux. Both drivers were among those killed. There was some fog at the time.

Thomas Tilling Interest in Pyrex Glassware.—Thomas Tilling Limited has purchased from Pilkington Brothers a 60 per cent. interest in James A. Jobling & Company, Sunderland, manufacturers of Pyrex laboratory, industrial, and lighting glassware, and motorcar and railway signal lenses. The amount involved exceeds £1,000,000. The business will be carried on as hitherto, with no changes in the management.

G.B. Instructional Films.—Two new industrial films have been produced by G.B. Instructional Limited, entitled "Electric Trains" and "Paper Chain." The former is sponsored by the British Thomson-Houston Co. Ltd. and is the third in the "Electric Traction" series of films, which has so far included "Battery Vehicle" and "Trolleybus." It shows representative B.T.H.-equipped electric railways at home and overseas and includes animated diagrams of electrical subjects. "Paper Chain" is sponsored by Wiggins Teape & Co. Ltd. and shows the production of high-quality paper from rag, pulp, and esparto grass at the different factories of the group.

Southern Region Lecture & Debating Society.—Visits arranged for members of British Railways, Southern Region, Lecture & Debating Society during 1950 commenced with the National Physical Laboratory, Teddington, on January 7, when a party of 18 members inspected the metal testing laboratories, hydraulics research section, high-voltage laboratory and wind tunnel. On Saturday, January 21, another 18 members visited the Post Office tube railway and studied the G.P.O. transport organisation in London at the

King Edward Building. The new electricity power station at Kingston-on-Thames was visited on January 28. At an indoor meeting at the Chapter House, London Bridge, on January 25, with Mr. A. E. Cantrell, Divisional Engineer, Purley, in the Chair, Mr. E. V. Brady gave an illustrated paper entitled an "Engineering Story." The paper was historical, military, and engineering in scope, and dealt comprehensively with the history of transport in Lebanon and Palestine.

Colombian Order for Austrian Rolling Stock.—Orders for 50 freight wagons, ten first class passenger carriages and four dining cars have been placed with the Austrian firm of Simmering-Graz-Pauker A.G. by the Colombian State Railways. The order is valued at \$1,000,000. Negotiations with other South American countries are said to be well advanced and are expected to result in additional orders.

Trent Motor Traction.—The final ordinary dividend of the Trent Motor Traction Co. Ltd. is 10 per cent., making 20 per cent. for the year, plus a cash bonus of 10 per cent., the same as for last year in both cases. Net profits for year, subject to audit, was £121,383, against £169,512 in the previous twelve months, after providing £74,342, against £55,491, for taxation. The annual general meeting will be held on March 7.

Manchester Ship Canal Company.—The directors of the Manchester Ship Canal Company at a meeting on February 10 resolved to recommend at the ordinary general meeting to be held on February 24 dividends of 3½ per cent. on Manchester Ship Canal Corporation preference stock, of 5 per cent. on preference and of 2 per cent. on ordinary shares. Net revenue for the year, after deducting interest and fixed charges and provision for tax and reserves, was £330,836 (last year £331,956).

Scottish Society of Students of the Locomotive.—Mr. Leonard Ingall, of Ruston & Hornsby Limited, read a paper on "The Development of the Diesel Locomotive, with some Scottish Applications," at a meeting of the Scottish Society of Students of the Locomotive, held on January 6, in the boardroom, Scottish Regional Headquarters; Mr. W. Robertson was in the chair. Mr. Ingall confined



Mr. R. F. Harvey, Motive Power Superintendent, Scottish Region, addressing the staff discussion meeting held recently in Glasgow and presided over by Mr. T. F. Cameron, Chief Regional Officer (see paragraph above)

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

LONDON Firm of Engineers and Agents with 30 years' experience of handling Contracts with leading Railway Authorities and Consulting Engineers would welcome two additional agencies for reputable manufacturers of Railway specialties who now have efficient London Office.—Box 607, c/o *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

TELEIC CONTROL ON THE L.M.S.R. Co-ordination of operating arrangements as a result of Grouping—Central, Divisional, and District Control. Outline of unified methods adopted—Organisation and working—Control telephone circuits—Daily telephone conferences. Paper 12 in. by 9 in., 20 pp. Illustrated. 5s. By post 5s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

his remarks to small and medium-size types as used in private traders' yards, and also gave an account of the diesel locomotive as applied to underground haulage. A number of lantern slides added further interest to the paper, and a discussion followed.

British Industrial Plastics.—The group accounts of British Industrial Plastics for the year to September 30 show trading profits amounting to £340,515, against £383,448, and net profits, after tax, of £90,087, against £90,240. The proposed ordinary dividend is again 20 per cent. At September 30 the consolidated current assets exceeded current liabilities and provisions by £400,000 as compared with £506,000 a year earlier.

Jonas Woodhead & Sons Ltd.—The ordinary dividend for the year ended September 30, 1949, was 10 per cent., as for the previous year. Group net profit, after tax, was £23,137 (£51,261 for 1947-48). The directors state that the lower profits were due, first, to an exceptional loss sustained by one subsidiary, and, secondly, to relief for taxation not being available in the year in respect of such loss. The group taxation charge increased from £42,095 in 1947-48 to £59,682 in 1948-49.

Beira Railway Payment.—The directors of the Beira Railway Company have decided to make a second distribution forthwith, restricted to 5s. a share. A first cash distribution of £2 per share was paid on June 6 last. The voluntary liquidation of the company was approved in May, 1949, and it was estimated that shareholders would receive a return of 51s. 6d. per share. The rights of the company were sold to the Portuguese Government for £4,000,000 as a result of negotiations which had been in progress intermittently since 1946.

Steel Company of Wales. In his statement circulated with the report and accounts for the year ended October 1, 1949, of the Steel Company of Wales, whose results were referred to briefly in our January 20 issue, the Chairman, Mr. E. H. Lever, said that rate of production had steadily risen. The higher prices for overseas sales, which had contributed to profits, were likely to be reduced through world competition. They had decided to amalgamate the provision for depreciation on operating works with the provision for furnace renewals. Interest on the loan to finance the development scheme amounted to £486,534 and had been charged against profit. Expenditure put in hand on the scheme was about

Crown Agents for the Colonies

DRAUGHTSMAN (Civil Engineering) required by the Nigerian Government Railways for a tour of 18 to 24 months in the first instance. Fixed pay according to age and experience between £720 and £1,060, including Emigration pay. Outfit allowance £60. Free passages and liberal leave on full salary. Gratuity on satisfactory completion of services. Candidates must have had at least five years' experience in the drawing office of a Railway Civil Engineering Department (or Consulting Engineers or Contractors) with practice in railway work. Knowledge of design and construction details of civil engineering structures and railway track work is required, including ability to take off quantities, prepare estimates and draw general specifications. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/17417/3A on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

REQUIRED: Journal Nos. 162 & 173 of the proceedings of the Institution of Locomotive Engineers. Please write to MESSRS. W. G. BAGNALL LIMITED, Stafford.

STANDARD MILITARY RAILWAY BRIDGES By F. S. Bond. A description of the different types of bridges designed for rapid erection in the field by the Allied Forces, and of the various methods employed in such erection. 28 pages. 9 in. by 12 in. fully illustrated. Paper cover, 5s. By post 5s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to: *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

£54,000,000 and of this amount £23,822,167 had been spent to date. Devaluation had not added to the cost of their American plant, for they had consistently bought forward dollars to cover the U.S.A. commitments in the development scheme, and dollars had been bought at the pre-devaluation rate.

Exactor Control Company : Change of Name. The name of the Exactor Control Co. Ltd., 108, Park Street, London, W.1, has been changed to Exactor Limited. This company in recent years has extended its activities to cover a wide range of hydraulic equipment, including the Exactor self-sealing coupling, and has added centralised lubrication to its activities by acquiring the exclusive manufacturing and sales licence for the Trabon series of products from U.S.A.

Display of Bakelite Industrial Plastics.—An exhibition of Bakelite, Warerite, and Vybak plastics will be held on the premises of the British Colour Council, 13, Portman Square, London, W.1, from March 9 to 17. The central feature will be the Bakelite Limited travelling exhibition, recently shown in Brussels, Oslo, and Stockholm. The exhibition is designed to illustrate the wide range of applications of plastics to industry. Admission will be by ticket, obtainable from Bakelite Limited, 18, Grosvenor Gardens, London, S.W.1.

Liverpool Overhead Traffics.—Declining traffic continued on the Liverpool Overhead Railway during January, after there had been a total fall of £6,235 for the year 1949. Receipts for the week ended January 1, 1950, were down by £387 at £2,041, and for the year amounted to £139,339. The largest setbacks in the first month of the 1950 financial year were in the weeks ending January 22 and 29, when traffics fell by £259 to £2,609, and from £2,751 to £2,501, respectively. Aggregate receipts at January 29 were £10,651, as compared with £11,452 last year.

Courses for Enquiry-Office Clerks.—A series of educational courses for railway enquiry-office clerks has been opened at the Cliffe Hotel, Whitley Bay, by the North Eastern Region of British Railways. The courses, which last four weeks, commenced on January 30, and are for twenty students. The courses are intended to improve students' efficiency in enquiry-office work by concentrated study and practice in reading timetables, by the widening of the students' knowledge of the British railway system, and by advice on the best methods of imparting information to the public. Practice in answering personal and telephone enquiries about train ser-

vices is an important part of the instruction, so that information may be given accurately, briefly, and clearly. The syllabus includes talks on courtesy and salesmanship, which it is hoped will encourage the development of those qualities essential to the successful handling of enquiries. Visits to important railway centres and to some of the larger enquiry offices of British Railways are an important part of the instruction.

Westinghouse Profits Increased.—The group trading profit of the Westinghouse Brake & Signal Co. Ltd. for the year ended October 1, 1949, was £491,213, an increase of £23,612 on the £467,601 profit for the 53 weeks ended October 2, 1948. The profit is arrived at after allowing £110,393, against £98,864, for depreciation. The parent company is paying a dividend of 14 per cent. on the £1,122,372 issued capital and this is the same as for the six preceding years.

Courses on Merchandise Handling at Sighthill.—Approximately 1,000 members of the staff employed in handling merchandise at railway goods stations in the Scottish Region have undergone instruction at the Sighthill Goods Handling School, Glasgow, since it was inaugurated in the autumn of 1948. Goods checkers, loaders and porters, released from their normal duties, spend a week attending lectures and practical demonstrations under this training scheme, which has proved so successful that the scope of the arrangements has been extended by the introduction of a mobile school. This winter the mobile school has served the Dundee, Perth and Edinburgh districts, and is at present in the Aberdeen area.

Clyde Coast Steamer Services.—To effect a general improvement in the winter schedules introduced on January 4, a number of changes have been made in the Scottish Region Clyde Coast steamer services, mainly on the routes via Craignordan and Gourock. The revised timetable, which was introduced on February 6, includes the following sailings: 8.10 a.m. Kilegreggan to Craignordan (connection due Glasgow Queen Street 9.37 a.m.); 9.45 a.m. Kilmun to Gourock; 3 p.m. Saturdays only Kilmun to Gourock; 3.40 p.m. except Saturdays Kilegreggan to Craignordan; 1 p.m. except Saturdays Rothesay to Gourock—1.50 p.m. from Dunoon (with connection to Glasgow Central due 3.32 p.m.). The 4.13 p.m. except Saturdays train from Glasgow Central to Gourock, with connection to Kirn, Dunoon, Kilegreggan, Blairmore and

Hunter's Quay, now leaves at 3.55 p.m. and there also are considerable minor adjustments in the Glasgow-Gourock-Wemyss Bay train services.

Forthcoming Meetings

February 17 (Fri.)—Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. "Simplification Creates New Problems for Top Management," by Mr. H. E. Merritt.

February 17 (Fri.)—Institution of Railway Signal Engineers, at the London Transport Executive Signal School, Earls Court Station, S.W.5, at 6.15 p.m. "Typical Signal Control Circuits," by Mr. J. P. Loosemore.

February 18 (Sat.)—Institution of Mechanical Engineers, Graduates' Section, Storey's Gate, London, S.W.1, at 3 p.m. Annual lecture: "Combustion in Diesel Engines," by Sir Harry Ricardo.

February 18 (Sat.)—Permanent Way Institution, Manchester & Liverpool Section, in the Railway Signal School, Victoria Station, Manchester, at 2.30 p.m. "Aspects of Modern Railway Signalling," by Mr. V. Mitchell, Area Signal Assistant, Manchester, London Midland Region.

February 21 (Tue.)—Institution of Civil Engineers, Great George Street, London, S.W.1, at 5.30 p.m. "Structural Uses of Brickwork," by Mr. Norman Davey and Mr. F. G. Thomas.

February 22 (Wed.)—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. "Railway Breakdown and Re-railing Equipment," by Mr. G. H. Lund.

February 22 (Wed.)—Railway Students' Association and British Railways, Western Region, London Lecture & Debating Society, joint debate at the London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6 p.m.

February 22 (Wed.)—Institute of Welding Luncheon at the Café Royal, Regent Street, London, W.1, at 1 p.m.

February 22 (Wed.)—Institution of Railway Signal Engineers, at the Salaried Staff Dining & Social Club, Crewe Station, at 6.30 p.m. Informal discussion: "All Electric Interlocking Lever Frames versus Relay Interlocked Control Panels," introduced by Mr. C. F. Vennin.

February 23 (Thu.)—Institution of Railway Signal Engineers, at Hunts Bank, Manchester, at 6.45 p.m. "Typical Signal Control Circuits," by Mr. J. P. Loosemore.

February 23 (Thu.)—Institution of Electrical Engineers, Annual Dinner at the Connaught Rooms, Great Queen Street, London, W.C.2, at 7 for 7.30 p.m.

February 24 (Fri.)—Institution of Electrical Engineers and Institution of Mechanical Engineers, joint meeting at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. "The Application of Gas-Turbine Technique to Steam Power," by Mr. J. F. Field.

February 24 (Fri.)—Stephenson Locomotive Society, Midlands Centre, at the Imperial Hotel, Birmingham, at 7.15 p.m. "The Midland Railway and its Influence on Operating," by Mr. O. S. Nock.

Railway Stock Market

Although with the beginning of the new Stock Exchange account rather more business is expected in markets, caution has prevailed, with little business in most sections. Election uncertainties explain the further small improvement recorded in iron and steels and other shares of companies threatened by nationalisation. Shares of companies with higher dividend possibilities were also more in favour, in the hope that dividend limitation may be modified or abolished.

Scottish Motor Traction preference shares rose sharply from 20s. to 21s. 9d., awaiting the final decision as to the pay-out for these shares which may receive 22s. 6d. instead of par (20s.) which had previously been expected. If this proves the case the decision may create an important precedent in respect of pay-out terms for preference shareholders. It is now being suggested that preference stockholders in Cable & Wireless may ask for more; the terms of the revised pay-out scheme are imminent.

There were small irregular movements in foreign rails, which attracted little business. After moderate selling of Leopoldina stocks, buyers reappeared, and prices strengthened a little. The ordinary stock was 9s., preference 26½ and 4 per cent. and 6½ per cent. debentures 91½ and 126 respectively. Leopoldina Terminal debentures changed hands around 96 and the ordinary units around 2s. 7½d.

Great Western of Brazil were rather more active around 132s. 6d., which, however, is well below the estimated pay-out. Leopoldina stocks and Great Western of Brazil shares all appear to be substantially undervalued on the basis of their probable pay-outs. Nevertheless, owing to the delay by Brazil in ratifying the agreements there has in recent months been a fair amount of selling. New buyers are apparently not coming in for the time being, because it may not be until June that sale agreements are finally approved by Brazil. Perhaps even then some months will elapse before stockholders are paid. Although this view now seems to be gaining ground, it would probably need only moderate demand for the stocks for market prices to be marked up fairly sharply.

San Paulo 10s. units have remained around 14s. and Brazil Rail gold bonds were 42½, but elsewhere, North Western of Uruguay first preference eased to 27s. National Railways of Mexico 4½ per cent. bonds improved to 22s. and the 6 per cent. bonds to 35.

La Guaira ordinary stock was more active around 77, and Bolivar "C" debentures strengthened to 54. Antofagasta ordinary has changed hands around 8, and the preference stock around 46. Manila "A" debentures remained at 72 and the preference shares at 6s. There was again much activity in United of Havana 1906 debentures around 25½, but sellers appeared on any improvement in price. Until the outcome of the take-over talks it is impossible to assess the position; and the market fears that if there are no take-over developments, prices of all United of Havana stocks would fall heavily. Canadian Pacifies have turned easier at 28½ with other dollar stocks, though the market remains confident that the dividend will be maintained.

Pullman Car "A" shares have been more active around 22s. 6d., in hopes of increased holiday traffic to the Continent.

The main feature in road transport and allied shares was the improvement in Scottish Motor Traction preference to 21s. 9d., awaiting the final decision on the pay-out for this class of capital. The company's ordinary shares were also better at 82s. 9d. Southdown kept at 125s. Lancashire Transport were 83s., and West Riding 66s. There were minor fluctuations around 47s. in B.E.T. deferred stock.

Iron and steels were generally a few pence better, though still much below their pay-out levels fixed in the event of nationalisation. The market believes that with removal of the nationalisation threat, iron and steel shares would register relief by an all-round advance, and might very well go above their take-over levels. Stewarts and Lloyds have been favoured around 53s. 6d.; United Steel were 27s. 7½d. and South Durham Steel 31s. 9d.

Locomotive builders' and engineers' shares moved little. Hurst Nelson were 58s. 6d. at Glasgow. North British Locomotive have changed hands around 19s. 4½d. Beyer Peacock were 19s. 1½d. Vulcan Foundry 18s. 7½d., T. W. Ward 56s., and Wagon Repairs 16s. 4½d.

Traffic Table of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date		
			Total this year	Inc. or dec. compared with 1947/48		Total 1948/49	Increase or decrease	
South & Central America								
Antofagasta...	811	5.2.50	£6,220	—	5	£354,254	+ £14,600	
Costa Rica ...	281	Dec., 1949	£357,783	—	c5,155,862	+ c917,757		
Dorada ...	70	Nov., 1949	23,909	+	8,758	48	+ 14,879	
Inter. Ctl. Amer. ...	794	Dec., 1949	£1,259,960	+	891,260	52	£12,395,066	+ \$938,884
La Guaira ...	22½	Jan., 1950	£87,562	—	£81,734	4	£78,562	+ \$31,734
Nitrate ...	382	31.1.50	25,060	+	9,872	4	46,287	+ 16,034
Paraguay Cent. ...	274	3.2.50	£139,925	+ £37,275	31	£4,416,733	+ 71,181,542	
Peru Corp. ...	1,050	Dec., 1949	£6,786,200	+ £2,633,399	26	£33,795,958	+ \$11,248,5277	
" (Bolivian Section) ...	66	Dec., 1949	£s.10,712,000	+ £s.2,677,768	22	£s.62,869,164	+ £s.10,973,05	
Salvador ...	100	Oct., 1949	£68,000	+ £14,000	17	£313,000	+ £16,000	
Taltal ...	154	Jan., 1950	14,450	+	4,535	31	90,155	+ 32,820
Canada								
Canadian National† ...	23,473	Dec., 1949	15,090,000	+	83,000	52	166,908,000	+ 3,151,000
Canadian Pacific† ...	17,037	Dec., 1949	10,039,000	—	320,000	52	151,084,000	+ 2,667,000
Various								
Barsi Light* ...	167	Jan., 1950	31,237	+	2,647	44	298,770	+ 22,522
Egyptian Delta ...	607	10.1.50	192,719	—	2,850	41	532,252	+ 46,443
Gold Coast ...	536	Dec., 1949	286,620	+	34,957	41	2,181,179	+ 280,809
Mid. of W. Australia ...	277	Nov., 1949	31,973	+	1,942	22	141,839	+ 1,905
Nigeria ...	1,900	Oct., 1949	632,907	+	115,113	30	3,360,709	+ 216,792
South Africa ...	13,347	14.1.50	1,414,990	+	34,767	41	60,969,023	+ 5,072,462
Victoria ...	4,744	Oct., 1949	1,792,078	+	371,156	17	—	—

* Receipts are calculated @ £s. 6d. to the rupee

† Calculated at £3 to £1